

*Little River*  
*Adaptive Management Area*  
*PLAN*

*DRAFT*  
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# INTRODUCTION

## *Adaptive Management*

In April of 1994, ten Adaptive Management Areas (AMAs) (Figure 1) were established within the range of the northern spotted owl by the Northwest Forest Plan (NWFP). These areas include lands administered by the U. S. Forest Service and the Bureau of Land Management. The Northwest Forest Plan grew out of the 1993 Forest Summit

where the President called upon a team of scientists to develop a strategy that would secure the integrity of the ecosystem and achieve a balance between social and economic needs. Adaptive Management Areas were created with the overall objective of learning how to manage on an ecosystem basis in terms of both technical and social challenges, and in a manner consistent with applicable laws. Specific technical objectives for AMAs are development, demonstration, implementation, and evaluation of monitoring programs and innovative management practices that integrate ecological and economic values. Social objectives include exploring collaboration with interested people and other agencies, experimenting with community involvement and participation, seeking new funding sources, and exploring how forest communities might be sustained. Innovation, experimentation, and the ingenuity of resource managers and communities is stressed.

Adaptive Management is an **approach** to management which applies a continuing process of project planning, implementation, monitoring, and adjusting based on what is learned. Hence, ecosystem management activities are opportunities for learning, where adaptations are made to modify or improve management. While adaptive management applies to all federally managed lands under the NWFP, Adaptive Management Areas are **places** specifically designated for this purpose. The results of learning through this process in AMAs is to be shared widely. The NWFP strategy relies on this flexible approach to maximize the benefits and efficiency of the standards and guidelines. Most management adjustments will be those that are within the authority of local agency administration, though refinement of NWFP and other agency plan standards and guidelines may also be considered as underlying assumptions are tested.

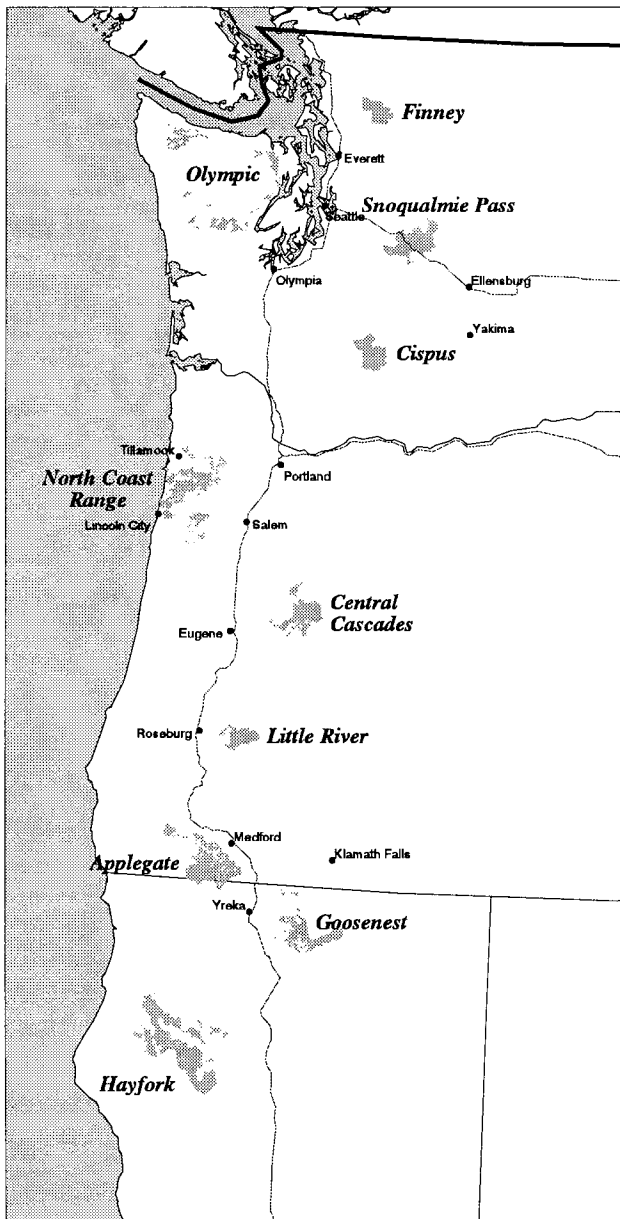


Figure 1. Adaptive Management Areas

## *Little River Adaptive Management Area*

The Little River Adaptive Management Area, located in the southern Oregon Cascade Range, is the smallest of the ten AMAs at 83,377 acres of public land (Figure 2). The Umpqua National Forest manages 63,575 acres of the AMA while the Roseburg District Bureau of Land Management manages 19,802 acres. The Little River AMA falls completely within the 131,800 acre Little River watershed. Thirty-seven percent of the watershed (44,795 acres) is in private ownership; 73% of which is managed as industrial forest.

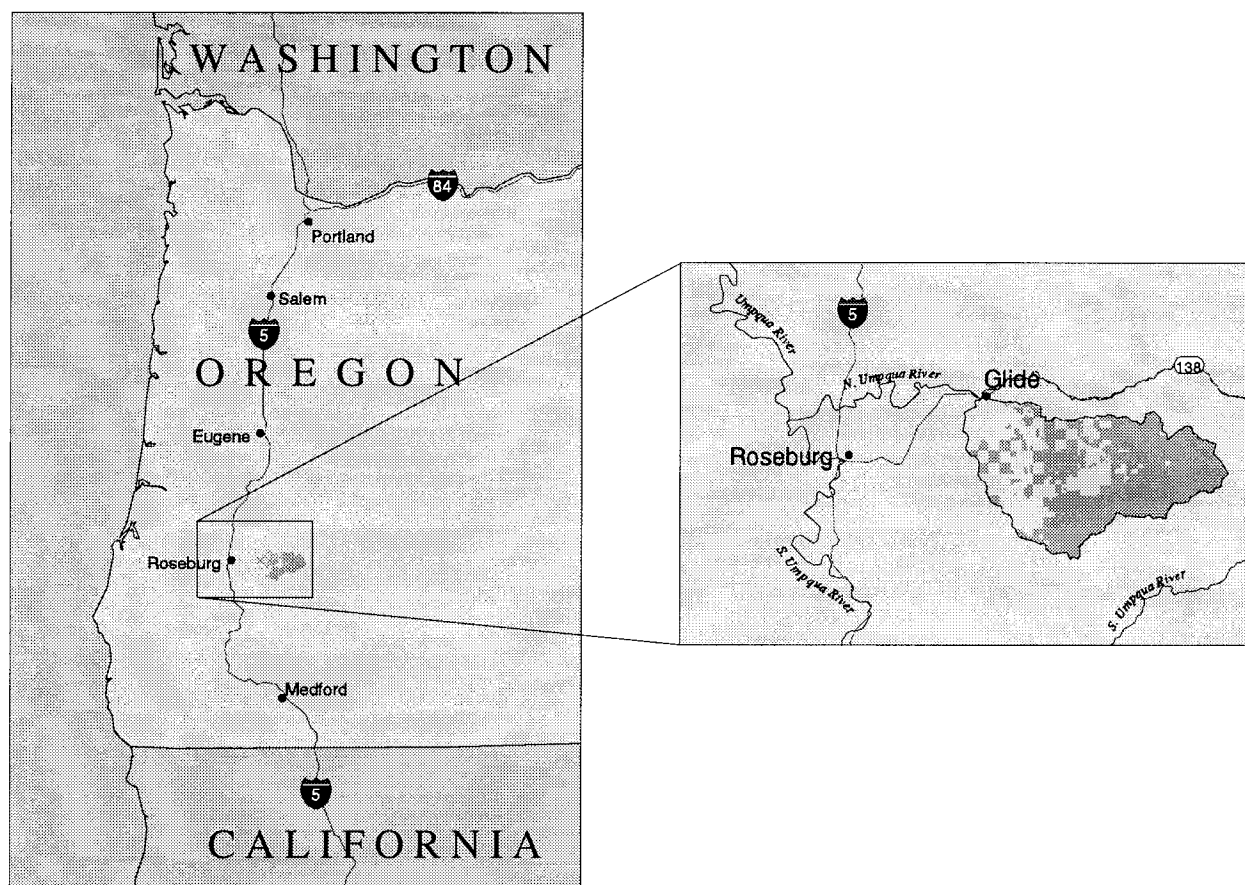


Figure 2. Location of Little River Watershed and AMA (shown in blue)

The dominant use of the area has been timber harvest. Due to the area's proximity to mills in Roseburg and because of its productive, high volume forests, the basin has been intensively harvested since the 1950s. Nearly 60% of the watershed has been harvested and reforested to date (37% of Forest Service holdings have been regenerated, 53% of BLM). An estimated 2 billion board feet of timber, enough to build approximately 133,000 homes, has been harvested from the public lands. Commercial thinning will increasingly contribute to harvest volume due to the higher proportion of younger age classes that will require thinning over the next several decades.

Little River flows into the North Umpqua River at the unincorporated town of Glide. An estimated 1,200 people live in the Little River watershed, many residents drawing surface water from Little River and its tributaries for domestic and agricultural uses. Recreation gradually increased over the decades as the road system was developed. The 630

miles of roads under federal jurisdiction in the AMA provide various levels of access for hunting, fishing, swimming, hiking, and sightseeing. Little River is one of the closest area of public land of any extent outside of the city of Roseburg (pop. 19,000).

## *AMA Plan*

The Northwest Forest Plan requires each Adaptive Management Area to complete a plan. This document sets a course for adaptive management following a shared vision of the desired future condition for Federally administered lands located in the Little River watershed. The AMA Plan was developed to be consistent with the Umpqua National Forest Land and Resource Management Plan (1990) and the Roseburg District Resource Management Plan (1995). No change in land allocations or land management standards and guidelines is being proposed. Therefore, the AMA plan is not a decision document. Some of the activities referred to within this plan, such as timber sales and watershed rehabilitation, will require individual, site-specific National Environmental Policy Act (NEPA) planning and documentation. Other projects, such as basic research and monitoring that do not have the potential of affecting the human environment, as well as this planning document, will not require NEPA related analysis.

The intent of this document is for it to be dynamic because there is much uncertainty surrounding forest management and its effects on ecosystems and dependent communities. The initial direction set by this plan is an "approximation" of what needs to be undertaken. Updates and corrections will be done periodically as knowledge is gained, conditions change, and as different participants become involved. The landscape-level strategies for this plan, for example, will likely change as new information and additional analysis and evaluations are conducted. Issues such as recent or proposed listings of endangered or threatened fish, i.e., Umpqua River cutthroat trout and coastal salmon, also are likely to strongly influence future revisions of this plan.

# MANAGEMENT DIRECTION

## *Regional Strategy*

Two major objectives of the Northwest Forest Plan are the maintenance of the late-successional forest ecosystem and the provision of a sustainable supply of timber and other forest resources on a regional scale. Species that depend on old-growth forests are addressed in the plan by a system of well-distributed reserves, linked by design to habitat provided in other allocations. Connectivity between Late-Successional Reserves is maintained by a Riparian Reserve system contained within the Matrix and Adaptive Management Area (AMA) allocations.<sup>1</sup> Matrix allocations, where most of the timber harvest takes place, are designed to provide connectivity between Late Successional Reserves and provide habitat for species associated with both younger and older forests. Adaptive Management Areas are also expected to contribute to the projected timber harvest from Federal lands. AMAs must meet the intent of the Standards and Guidelines for Matrix allocations though, as specific Standards and Guidelines are not prescribed for these areas. Similarly, riparian protection in AMAs should be comparable to that prescribed for other allocations. Some management flexibility is provided for in Riparian Reserves within AMAs.

An important component of the Northwest Forest Plan is the Aquatic Conservation Strategy. The Aquatic Conservation Strategy (ACS) was developed to restore and maintain the ecological health of watersheds and aquatic ecosystems contained within them on public lands. The ACS would protect salmon, steelhead, cutthroat, and other aquatic organisms on federal lands. It is composed of four major components: Riparian Reserves, Key Watersheds (a system of designated refugia), watershed analysis, and restoration. Federal agencies must manage riparian-dependent resources to maintain the existing condition or implement actions to restore conditions. The baseline from which to assess maintaining or restoring condition is developed through a watershed analysis. While some improvements in aquatic systems are expected in the short-term, the ACS is fundamentally a long-term approach applying to broad landscapes.

The network of AMAs, including Little River, is intended to contribute substantially to the achievement of the overall NWFP objectives. These include the provision of well-distributed late-successional habitat outside of reserves, retention of key structural elements of late-successional forest on lands subjected to regeneration harvest, restoration and protection of riparian zones, and provision of a stable timber supply. Recommended technical priorities for the AMAs to demonstrate and investigate include 1) creation and maintenance of a variety of forest structural conditions, 2) integration of timber production with maintenance or restoration of fisheries habitat and water quality, 3) restoration of structural complexity and biological diversity in forests and streams, 4) integration of wildlife habitat needs with timber management, 5) development of logging and transportation systems with low impact on soil stability and water quality, 6) design and testing of effects of forest management activities at the landscape level, 7) restoration and maintenance of forest health using controlled fire and silvicultural approaches, and 8) research the role and effects of fire management on ecosystem functions. Social learning emphasizes flexible experimentation with policies and management. Locally crafted approaches to involving agencies, organizations, and citizens in 1) setting objectives, 2) mutual learning, 3) monitoring, and 4) assessing accomplishments are to be explored.

Adaptive Management Areas were created for development of innovative approaches to achieving the ecological and

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<sup>1</sup>Late-Successional Reserves, Riparian Reserves, Matrix, and Adaptive Management Areas are all specific land allocations of the Northwest Forest Plan. (See glossary).

economic goals of the Northwest Forest Plan. The role that each Adaptive Management Area plays in the regional strategy varies with specific learning emphases assigned in the Northwest Forest Plan. Learning through monitoring of management activity is stressed for all AMAs. The emphasis for nearly all AMAs is to develop or maintain late-successional forest stands.<sup>2</sup> Similarly, riparian area protection is an emphasis for most AMAs. Other learning objectives are related to commercial timber production, forest health, and recreation. Exploring ways to blend multiple priorities is a challenge to all areas. Whatever the emphasis, AMAs were geographically located to minimize the risks from experimental impacts on the objectives of the regional strategy.

### *Little River AMA Emphasis*

The specific emphasis for the Little River Adaptive Management Area is the "development and testing of approaches to integration of intensive timber production with restoration and maintenance of high quality riparian habitat." Intensively managed forest stands are those that are managed to obtain a high level of timber volume or quality. This is accomplished through investment in growth enhancing practices such as precommercial thinning, commercial thinning, genetic improvement, fertilization, and stand protection. Riparian habitat includes the riparian area proper as well as habitat within streams or other bodies of water. Riparian habitat is healthy when adequate vegetation, landform structures, or large woody debris is present in a configuration that provides for dampening of flow fluctuations, buffers impacts that could lower water quality, and provides for wildlife needs. Specific outputs of timber and riparian habitat are not designated in the emphasis; rather, approaches are to be developed and tested.

Monitoring projects that use innovative management approaches will be the key to learning in the Little River AMA. Formal research projects will be actively promoted but will not supplant ongoing management and monitoring as the primary learning process. Learning how to maintain and restore high quality riparian habitat in a watershed where appropriate stands are intensively managed for timber production will require basin-wide and project-specific monitoring of riparian condition as it is effected by silvicultural practices. Timber management activities will occur concurrently with riparian habitat maintenance and restoration.

Learning how to simultaneously manage timber and riparian condition will be accomplished in conjunction with the development of new and innovative approaches to timber production and maintenance and restoration of riparian habitat. The primary application of this learning will be to Matrix and Riparian Reserve allocations. Intensive timber production will require timely application of appropriate practices that maximizes productivity. The land management agencies will seek project opportunities that stress the specific emphasis for Little River AMA that comply with applicable laws such as the Clean Water Act and the Endangered Species Act. All management projects will consider the effects of site specific and cumulative impacts of the action on riparian quality. While separate restoration projects will be undertaken, attention will be given to the integration of riparian restoration with silvicultural activities. Major projects should consider specific learning objectives with associated monitoring plans.

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<sup>2</sup>The NWFP does not specify any objectives related to development and testing of approaches to late-successional habitat to the primary emphasis for Little River AMA.

# *AREA ASSESSMENT*

The Northwest Forest Plan directed that each AMA develop an area assessment that explores the biophysical and social aspects of each AMA. The area assessment for Little River was completed in November of 1995, and it includes two documents: 1) Little River Watershed Analysis and, 2) Social and Economic Assessment of Douglas County relating to the Little River AMA. Both of these assessments resulted in a series of recommendations that grew out of a comprehensive review of existing information as well as investigation, reconnaissance, collection, and synthesis of new information. These findings provide the foundation for the AMA plan. Since the Area Assessment is extensive, the reader is encouraged to reference both documents for the background data, rationale, and interpretation that ultimately lead to a series of findings and recommendations. The following is a brief summary of historical and current conditions from the watershed analysis and a summary of the social and economic assessment. This information along with a shared, desired future condition sets the stage for implementation of the adaptive management process in the specific context of Little River.

## *Biophysical*

### *terrestrial*

The fire regime in Little River has shifted from one of moderate severity during historic times to a high severity fire regime today primarily because of effective fire control. Prior to effective fire control (pre-1940's) fires of moderate severity burned often, mostly as ground fires. Occasionally, when weather conditions were extreme, the ground fires were mixed with areas of stand replacing crown fire. Today's more intense fire regime can be tied to the amount and structure of live and dead woody fuels resulting from decades of effective fire exclusion. Many stands in the watershed are currently composed of a higher density of understory vegetation than what was estimated for historic conditions. For example, fourteen percent of the watershed was estimated to be in high hazard fuel categories during two historic reference points (late 1800's to early 1930's) while 63 percent is estimated to be in high risk fuel categories today.

Conditions conducive to insect pest epidemics, particularly for mountain pine beetle, are developing. These conditions are a result of competition from dense understory growth that stresses overstory trees, increasing their susceptibility to insect attack. White pine blister rust is also present and is an added stress factor in the 4,400 acres of land where sugar pine and western white pine populations are naturally numerous but currently declining.

There has been a large decrease in late-seral (old) forest and a large increase in early and mid-seral forest over historic conditions. Sixty percent of the land (both private and public lands) in the Little River watershed, which was primarily late-seral forest in the 1930s, has been harvested. This created a shift in where late seral habitat occurs on the landscape. The sites where older forest can be expected to be more stable and long-term (located in moderate to gentle terrain) providing important contiguous and long-term forest habitat conditions, have mostly been harvested due to their higher economic value and less expensive logging and roading costs. These old-growth areas were estimated to cover from 69 to 80 percent of the Little River landscape during two reference points (late 1800's to the early 1930's). The old-growth forest has decreased by as much as 50 percent in the watershed from these reference periods. Now, 82 percent of the mature and old forest remaining in Little River are in warm/dry sites on steeper slopes that are prone to stand replacement fires.



Plant and animal species associated with older forest conditions have declined and those associated with younger forest conditions have increased. Slightly over 30% of the historic unique habitats (meadows, talus, caves etc.) remain somewhat undisturbed. Noxious weeds are spreading and open roads are avenues of dispersal.

Harvest of public lands since 1980 has totaled over 11,000 acres. These previously harvested areas would need precommercial thinning to maximize development of commercial wood products.

Tractor logging in the 1950's through the 1970's resulted in extensive compaction of soils and loss of site productivity in some of the most productive, low elevation sites in the watershed. In compacted areas, trees have restricted root systems which limit their ability to obtain water and nutrients. Stand exams in Little River have shown up to 30% loss in wood volume in stands on compacted soil compared to similar sites with normal soil densities. Natural recovery time of the compacted soils is unknown but one study indicated no appreciable recovery after 40 years.

### *aquatic*

Since the 1940s, forty-six percent of the forest along perennial streams (360 feet either side) and sixty-two percent of the stands along intermittent streams (180 feet either side) have been clearcut-harvested within the Little River watershed. Water temperatures appear to have increased due to removal of riparian trees and stream channel widening. Algal blooms, which are related to increased nutrients and sunlight levels, have been found in Little River watershed to be associated with stream water pH that fails to attain state standards in Little River and Cavitt Creek.

The frequency of landslides and debris torrents throughout the basin has increased substantially. Seventy-three percent of the landslides since 1940 have been linked to timber harvest and roads. More fine sediment is entering stream channels than the streams are capable of transporting resulting in fine sediment accumulations, lowering aquatic insect production and survival of developing fish eggs.

Most of the fish bearing streams in the watershed have had large wood removed from the channel area. At one time, logging operations were required to clean out streams. Harvesting riparian areas, which would have provided new down wood recruitment to streams, has also contributed to the loss of large wood.

Several factors have affected the water routing process in the Little River watershed. The removal of forest canopy in the transient snow zone, soil compaction from tractor logging and roads, plus an extensive road/ditch network, all contribute to more direct and rapid delivery of water to streams during winter storms. These cumulative effects appear to cause storm flows to peak more quickly and at higher flows than they would have historically. Larger winter floods can lead to in-channel habitat impacts and loss of overwintering fish and other aquatic organisms.

Several fish stocks considered at risk are found in Little River and its tributaries. On July 8, 1996 the Umpqua River cutthroat trout was listed by the National Marine Fisheries Service as an endangered species. Coho salmon are proposed for federal listing as "threatened." Steelhead trout have also been petitioned for federal listing but have not been acted upon as yet by the National Marine Fisheries Service. Spring chinook salmon, rainbow trout, numerous non-game fish species, Pacific lamprey, and several introduced fish species inhabit the streams of Little River as well. Many of the salmonids are far less abundant in numbers compared to historic accounts.

## *Socio-Economic*

### *characterization*

Historically, the Southern Molalla was the Native American group most closely associated with the Little River basin with a principle homeland probably confined to the North Umpqua, South Umpqua, and Little River. Early information suggests that these Indians left the main Cascades during the winter to reside in villages in the river canyons or foothills. They subsisted on big game, berries, roots, and fish. Driven by generous land laws, pioneer settlement was under way by the 1850s. Farms, ranches, and the Little River communities of Glide, Peel, and No Fog were established during this period. Logging was added to the initial economy of agriculture and mining with the development of the railroad in 1872. The Umpqua National Forest was created in 1908 and in 1916, Congress revoked title to 2 million acres of Oregon and California Railroad lands, giving administrative responsibility to the General Land Office.

Today, federally managed lands of the Umpqua National Forest and the Bureau of Land Management make up 63% of the 132,000 acre Little River basin. The remainder is private, of which 35,000 acres is industrial forest land. This compares with Douglas County's 46% privately owned forest and farm land and 54% public. The most significant community geographically associated with the Little River watershed is the adjacent, unincorporated town of Glide. Glide is a bedroom community of Roseburg but has a local economy tied to area businesses, recreation, and tourism. Roseburg (pop. 19,000), a twenty minute drive west of Glide, is the largest commercial center within a 51 mile radius of Glide and the Little River watershed. Most of the demographic, economic, and political features associated with Little River Adaptive Management Area must be inferred from a characterization of Douglas County because of limited measurable socio-economic activity within the basin itself.

A population density of 20 people per square mile is mostly confined to urban areas in Douglas County. The county is growing but at a slower rate than most of the state (6th slowest in Oregon). As of 1990, 23% of the population had moved into the county since 1985; a high proportion were retirees. With independent economic resources, these new residents constitute a growing economic sector. The median age is 36 (34.5 for Oregon), which reflects an influx of retired citizens and the outmigration of young people in the 1980s. The level of education continues to rise as the number of residents with less than a high school education declines. Minorities comprise 4.7% of the county's population. Native Americans are the most represented minority yet, Asians are the fastest growing group of the non-White population.

Douglas County unemployment is consistently higher than state and national averages. The unemployment peak of 1992 (15%) had dropped below 7% by 1995. Periods of unemployment were led by job losses in the lumber and wood products industry, with 2460 jobs lost between 1979 and 1994. A decline in the county timber harvest (down 51% from 1985 to 1992) was partially responsible for the closure of a dozen mills during the 1980 to 1993 period. The fall-off in timber-related employment levels has been somewhat mitigated by increased harvest of non-industrial private forest lands, a reduction in overall mill demand (western mills continue to close, easing log competition for those that survive), and a reduction in world demand for lumber. Job losses that occurred in the lumber and wood products industry from 1979 to 1994 were accompanied by employment growth in services (2420 jobs), retail trade (1490 jobs), transportation, communications, and utilities.

The per capita income of Douglas County in 1990 (1987 dollars) was \$12,870. It continues to increase but at a slower rate than the state or nation. In 1992 wages and salaries accounted for fully 50% of the total income of the county but transfer payments (retirement, disability, unemployment insurance, etc.) have become the fastest growing source.

Income from transfer payments comprises 20.9% of county resident income; lumber and wood products contribute 19.1%. Diversification of the economy with the addition of companies like Bayliner, Alcan Cable, and Ingram Books should help stabilize income levels over the long-term.

### *opinions*

Statewide, Oregonians rate the environment as their third most important value in a list led by family and career. Concern about the environment has been increasing with rural residents in the Pacific Northwest, especially among younger people. Forest management is the leading environmental issue in Oregon, yet 89% of Oregonians believe it is possible to simultaneously maintain a healthy forest products industry and a healthy environment. Forests are considered important as a source of water, wildlife, and jobs. While generally comfortable with forest management, many state residents find undesirable an unnatural appearance or lack of diversity in forest stands.

Residents and local politicians from Douglas County were prominent participants in the debates over old-growth forests versus timber supply and jobs. Local labor representatives, the county commissioners, school boards, and numerous organizations combined forces with the forest industry in the county during the period of struggle leading up to the President's Forest Conference. Discomfort with the Northwest Forest Plan and its implementation is still voiced by timber interests and an increasingly vocal local environmental community is claiming its own place in the media spotlight with regards to public lands management. In 1995, a local ballot measure which intended to challenge the authority of the federal government to hold lands in the county was passed by a 2-to-1 margin by voters. Though primarily a question of O&C receipts (disbursements to counties from federal timber sales), the Association of O&C Counties reflects public sentiments with its proposed transfer of O&C lands to state control. Another land exchange proposal, the Umpqua Pilot, would exchange public for private lands. The salmon issue has had the effect of bringing different interests together. Douglas County Commissioners responded with the formation of the Umpqua Basin Fisheries Restoration Initiative (UBFRI),<sup>3</sup> a forum for dialog and coordination among government agencies and diverse interests, with a common goal of improving fish habitat.

Opinion leaders were interviewed as part of the Area Assessment process to take a closer look at how the community viewed issues related to the Little River Adaptive Management Area. Most considered the leading issue to be the changes in forest management, timber supply, and timber receipts. Sustainability of the resource and maintenance of healthy forests were chief forest management concerns. Balancing uses of the forest was viewed as a major issue, still, many felt that timber production and riparian protection can coexist. It appears that many county residents would prefer more non-governmental influence. Some were concerned that ecosystem management was being forced on private landowners. Societal consensus on forest management issues was viewed as impossible, concluding that local opinion should hold more weight. How to involve the public in public land management decision making though, was a question most people struggled with. Education was considered one key. When describing a picture of a future community, those interviewed recognized that change is occurring and a diverse economy is needed, but they would prefer to maintain the rural character of the community. Tourism, recreation, high technology industries, and secondary wood products were seen as areas to emphasize. Forest workers of the future were envisioned as being more highly skilled and educated than those of the past.

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<sup>3</sup>UBFRI is part of the Governor's watershed council strategy for watershed restoration.

# *PUBLIC INVOLVEMENT*

## *Adapting a Strategy*

Responding to the direction for AMAs in the Northwest Forest Plan to find creative solutions to community involvement with project planning, the two land management agencies held a public meeting on April 19, 1994. The heavily advertised meeting attracted approximately 185 people from surrounding communities. Those in attendance gave the agencies a feel for how they would like to be involved in the AMA. The public's interest in learning led to a series of field trips and educational forums scheduled for the summer and fall of 1994. Meeting disruptions, prompted the Roseburg District BLM and Umpqua National Forest to reevaluate the public involvement strategy. Involving the local community in a way envisioned by Forest Ecosystem Management Assessment Team (FEMAT, VII 98-118) was also confounded by sociological characteristics unique to Douglas County. The Forest Plan however, encourages the development of approaches that are appropriate for the local area. As a result, the Little River AMA public involvement strategy was restructured to draw on the strengths of existing organizations and partnerships.

## *Current Emphasis*

The current public involvement strategy is a deliberate approach of involving self-identifying public with the management process. It stresses increasing awareness of adaptive management projects, strengthening support, and expanding involvement. Public involvement with implementation and effectiveness monitoring is one component of the strategy. Communications with individuals and organizations is another. For example, the agencies are represented on the Province Interagency Executive Committee (PIEC) as well as on the Province Advisory Committee (PAC), composed of agency personnel and citizens. Special efforts have been made to find ways to maintain or enhance communications with the Douglas County Commissioners. General briefings, slide shows, and tours will update groups on AMA progress. Assistance to managers and communities is available through the Technical Advisory Committee (TAP). Newsletters are another communication tool and a Little River Adaptive Management Area Home Page has been placed on the World Wide Web (<http://www.teleport.com/~lrama>) to provide the public at large with access to AMA documents and information about current projects. Increased media coverage is another goal for the months ahead.

## *Partnerships*

Formal partnerships are evolving as a result of a specific emphasis on partnership formation. Partnerships may provide the ultimate means for fully involving interested publics, organizations, and other agencies. In 1995 a cooperative effort including Douglas County, Umpqua Community College, Umpqua Training and Employment, Umpqua Community Development Corporation, Umpqua National Forest, and the Roseburg BLM was responsible for implementing the Jobs-in-the-Woods demonstration project. Recently, a formal MOU was signed between the land management agencies and Glide School District for the cooperative development of a school-to-work project focused on ecology and monitoring in the AMA. Another specific example of agencies and schools working together is the joint Wolfpine timber sale which also includes Pacific Northwest Forest Research Station, the SW Oregon Forest Insect and Disease Technical Center and the Wolf Creek Job Corps.

# *DESIRED FUTURE CONDITION*

The Record of Decision of the Northwest Forest Plan directs that all Adaptive Management Area Plans be based on information about historical, current and desired future conditions of the biophysical, social and economic aspects of the area. What follows is a shared vision, i.e. goals and objectives, for the Little River Adaptive Management Area. It was developed through the area assessment process, collaboratively between the land management agencies, with input from other federal, state, and local entities and the public.

## *Biophysical*

### *terrestrial*

- highly productive timber management areas
- landscape more resilient to wildfire and disease and insects
- a network of late-successional forest, with an emphasis on riparian areas
- legacy habitat components left or developing in all stands
- diversity of native plant and wildlife habitats and populations

### *aquatic*

- riparian areas dominated by late-successional condition with increased levels of large in-stream wood
- water quality that meets Oregon Department of Environmental Quality standards
- sediment and flow regimes that result in high quality aquatic habitat
- increased populations of healthy, native fish and other aquatic organisms

## *Social-Economic*

- public knowledgeable about ecosystem management
- sustainable and dependable harvest level
- private landowners and local public participating in collaborative land management processes
- improved and increased recreational opportunities
- funding continuity through interagency cooperation

## *LEARNING STRATEGY: Monitoring and Research*

Learning through the adaptive management process depends on monitoring and research. Monitoring is the process of collecting information to evaluate if anticipated results of a plan or project are being realized or if implementation is proceeding as planned. Hence, monitoring is necessary to ensure that management actions are meeting the objectives of the standards and guidelines of the Northwest Forest Plan and that they comply with laws and policy.<sup>4</sup> The term "monitoring", as used in this document, may also include research. "Research", is an in-depth investigation of specific questions. In the Little River AMA, research may be associated with a specific management activity or can be a stand-alone project. Baseline data collection and research are both important because they provide a basis for making comparisons to support management decisions.

Successful adaptive management requires monitoring that is sufficiently sensitive to detect relevant ecological changes. Therefore, the success of adaptive management depends on the accuracy and reliability of information obtained through inventories, monitoring, and research. Close coordination and interaction between land management and research is essential to the success of the adaptive management process. Simple monitoring will answer many questions that are posed in order to understand if management actions lead to desired conditions. However, formal research will be needed to provide explanations for more complex inquiries into management effects or assumptions.

One of the challenges in designing a learning strategy is the need to consider a variety of geographic scales (region, province, watershed, and specific site) in a manner that allows localized information to be compiled and placed in a broader, regional context if applicable. Some questions posed in the Little River learning strategy are unique to the Little River, while others are applicable to the Southwest Oregon province or the region as a whole. A learning strategy must also address the temporal scale of the monitoring. It can be a one-time project or continuous, long-term process. The three-part monitoring framework adopted in the Northwest Forest Plan is listed here in order of complexity as well as potential geographic and time-frame context:

**Implementation monitoring** verifies that specified standards and guidelines are being met. It is the most basic form of monitoring, resembling a check list of compliance with plan or project guidelines. It is generally based on direct observations where little or no testing, evaluation, or analysis are necessary. Implementation monitoring primarily addresses local situations.

**Effectiveness Monitoring** is used to determine if the design and execution of prescribed practices are meeting the desired results.

**Validation Monitoring** determines whether practices and underlying assumptions are sound. Formal research, often replicated on a regional scale, is required to help determine if plan assumptions are valid and if there are better ways to meet goals and objectives. Close coordination with academia, research agencies, and other AMAs is imperative.

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<sup>4</sup>When the U.S. District Court ruled that the NWFP was legally sufficient, the judge stated that "...monitoring is central to the Plan's validity. If not funded, or done for any reason, the plan will have to be reconsidered."

Research is important when in-depth investigation are needed to answer specific questions. Research is complimentary, and in some cases, integral to the monitoring framework defined above. Two types of research will be applied in Little River AMA. These are defined as follows:

***Applied Research*** are investigations that provide information and technologies specific to decision making.

***Basic Research*** provides theoretical concepts, models, or determinations that fill gaps in knowledge of scientific phenomena.

The Little River learning strategy represents a synthesis of considerations derived from the general direction given to Adaptive Management Areas in the Northwest Forest Plan, the specific emphasis assigned to the Little River AMA in the NWFP, the Little River Watershed Analysis and Socio-Economic Assessment, and public and other agency input. Presently, learning options undertaken depend on funding and personnel, using an opportunistic approach taking advantage of funds and resources as they become available. For this reason the various options that make up the learning strategy are not prioritized.

Both the 1990 Umpqua National Forest Land and Resources Management Plan and the 1995 Roseburg District Resource Management Plan have extensive monitoring requirements. Many of the monitoring elements in these plans focus on implementation monitoring. Implementation monitoring within the AMA will occur as defined under these pre-existing plans. The implementation monitoring items listed in the Little River learning strategy do not reiterate what is covered in the pre-existing plans; they specifically address implementation of adaptive management and the Little River emphasis. The Regional Ecosystem Office will review this AMA plan to assure that "...validation monitoring is incorporated."

**LITTLE RIVER AMA  
PRIMARY EMPHASIS  
and STRATEGY**

Type	Project Specific	AMA-Wide	Strategy/Specific Projects
Implementation		Are projects in the AMA addressing the emphasis and strategy?	annual evaluation by peers and public
Implementation		Are projects developing and testing new and innovative approaches?	annual evaluation by peers and public
Effectiveness & Validation	Is riparian habitat maintained or improved as intensive timber production is practiced?	Is riparian habitat maintained or improved as intensive timber production is practiced?	project specific studies and basin-wide cumulative impact studies
Validation	Do legacies left in managed areas provide presumed habitat needs?		examine effects of practice as they relates to assumptions for NWFP prescriptions for leave trees and down wood
Validation	Do riparian buffers provide connectivity and habitats assumed in NWFP?		examine effects of practices as they relates to assumptions for NWFP prescriptions
Applied Research	Do different levels and patterns of tree retention provide ecosystem function, e.g., connectivity, as assumed in NWFP?		D.E.M.O. Timber Sale
Applied Research & Effectiveness	Do treatments promote highly productive timber stands while providing old-growth components?		D.E.M.O., Whitecap and Shadow Commercial Thinnings, East Clover Timber Sales

**DESIRED FUTURE  
CONDITION**

Highly Productive Timber Management Areas (see Fig. 3)

Implementation		Are primary emphasis areas for forest products being managed in a highly productive manner?	evaluation of harvest timing and prescriptions for all harvested stands
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Landscape Resilient to  
Wildfire and Insects and  
Disease

Network of Late-  
Successional Forest With  
Emphasis on Riparian  
Areas

Type	Project Specific	AMA-Wide	Strategy/Specific Projects
Implementation		Are thinnings in primary emphasis areas for forest products conducted in a timely and productive manner?	evaluation of available thinning acres vs treated acres, evaluation of harvest prescriptions
Effectiveness	Are young managed stands adequately stocked and growing at site capability?		post-planting regeneration surveys, periodic stand exams, and other methods
Effectiveness	Does soil decompaction improve tree growth and soil properties?		compare soil and tree growth characteristics in decompacted and untreated sites Whitecap and Shadow Commercial Thinnings
Effectiveness & Validation	Have treatments resulted in stands resilient to wildfire, disease, and insects?	Have treatments resulted in a landscape resilient to wildfire, disease, and insects?	long-term post-treatment studies, periodic forest health assessment, East Clover, Withrow Timber Sales Whitecap and Shadow Commercial Thinnings
Effectiveness	Have treatments resulted in fuel reductions?		pre and post-treatment survey East Clover and Withrow Timber Sales
Effectiveness	Do thinning treatments reduce mortality of sugar pine and western white pine?		long-term studies, Wolfpine Timber Sale
Applied Research		What is the fire regime for Little River watershed before and after fire exclusion?	OSU Master's Thesis
Effectiveness		Is late successional habitat being maintained or restored?	long-term monitoring of age-class other structural components Whitecap and Shadow Commercial Thinnings
Effectiveness	Have riparian treatments accelerated late-successional development?		long-term post-treatment monitoring studies Sampson Butte, Whitecap, and Shadow Commercial Thinnings

Legacy Habitat  
Components Left or  
Developing in All Stands

Type	Project Specific	AMA-Wide	Strategy/Specific Projects
Effectiveness	Do old-growth legacy components meet long-term structural objectives assumed in NWFP?		post-harvest monitoring and mapping of leave trees
Validation	Do old-growth legacy components meet long-term wildlife objectives assumed in NWFP?		studies of relation of legacy components to wildlife use.
Effectiveness	Are treatments designed to promote natural regeneration of tree species effective?		natural regeneration studies, East Clover Timber Sale
Applied Research		What are the distributions and amounts of large down wood and snags in different environments and what levels are needed for ecological function?	down wood and snag inventory, permanent plot monitoring, and study
Effectiveness	Have innovative treatments enhanced tree growth and biological diversity together?		studies of plant and wildlife responses to treatments Sampson Butte, Whitecap, and Shadow Commercial Thinnings
Effectiveness and Applied Research	Were treatments effective in restoring declining populations of plant species?		Mariposa Lily study
Effectiveness & Validation	Are techniques used to restore sugar pine effective?		periodic stand exams, special studies
Effectiveness	Do native seed plantings provide effective erosion control and forage?		cooperative studies with Stone Nursery
Applied Research	What is the role of hardwoods in providing habitat diversity to conifer stands?		study

Diversity of Native Plant  
and Wildlife Habitats and  
Populations

Riparian Areas  
Dominated by Late-  
Successional Condition  
With Increased Levels of  
Large In-Stream Wood

Water Quality That Meets  
DEQ Standards

Sediment and Flow  
Regimes That Result in  
High Quality Aquatic  
Habitat

Increased Populations of  
Healthy, Native Fish and  
Other Aquatic Organisms

Type	Project Specific	AMA-Wide	Strategy/Specific Projects
Effectiveness		Are in-stream levels of large wood consistent with the natural range?	periodic surveys
Effectiveness		Are thinning techniques used to increase large wood in riparian areas effective?	stream and riparian surveys of down wood Whitecap and Shadow Commercial Thinnings
Effectiveness		Does water quality meet DEQ standards for temperature and pH?	continuous and grab-sample monitoring
Validation	Does stand level fertilization effect water quality?	Does landscape-level fertilization effect water quality?	formal studies of fertilization treatments
Implementation	Have measures been taken in timber sales to maintain and restore flow regimes?		annual evaluation
Effectiveness		Do sediment and flow regimes reflect high quality aquatic conditions?	continuous and grab-sample monitoring, spawning gravel monitoring
Effectiveness		Do new and current practices control sediment production from roads?	monitoring of best management practices
Effectiveness		Have management practices impacted in-stream channel conditions.	periodic stream surveys, landslide inventory
Effectiveness		Do populations of native fish and aquatic organisms approximate historic levels?	Little River smolt trap, stream surveys
Validation	Do in-stream structures effectively change stream habitat characteristics to benefit fish?		formal studies of habitat effects and population studies

Public Knowledgeable about Ecosystem Management

Sustainable and Dependable Harvest Level

Private Landowners and Local Public Participating in Land Management Process

Improved and Increased Recreational Opportunities

Funding Continuity Through Interagency Cooperation

Type	Project Specific	AMA-Wide	Strategy/Specific Projects
Effectiveness		Is the public knowledgeable about ecosystem management?	periodic surveys
Effectiveness		Are annual harvests approximating agency plan levels and fluctuating less than 20% decadal?	periodic evaluation, AMA-specific harvest planning
Effectiveness		Are public contributing to planning and implementation of projects in AMA?	periodic peer and public evaluation
Effectiveness		Are the techniques developed to involve the public working?	periodic peer and public evaluation
Effectiveness		Are recreation opportunities being maintained or improved?	annual review
Implementation		Are agencies collaborating on budget?	periodic evaluation

# IMPLEMENTATION STRATEGY

## *Project Implementation Procedure*

### *1. multi-watershed planning*

The Northwest Forest Plan Standards and Guidelines, Provential Interagency Executive Committee (PIEC) direction, watershed council priorities, and individual agency plans (LRMP and RMP) provide a framework for insuring that projects fit with the regional strategy of the NWFP. Using the above guidance in conjunction with locally developed watershed analysis, the Ranger District and Resource Area will annually identify respective management programs using an interdisciplinary process.

### *2. learning objective development*

Learning objective development should be part of the project planning process. Primary emphasis for projects will be developing and testing approaches to the integration of intensive timber production and restoration and maintenance of high quality riparian habitat. Monitoring should be attached to all significant projects whenever personnel and resource commitments are possible. Learning can be accomplished through a range of designed observational efforts; from simple monitoring to formal research. The Learning Strategy (pg. 12) identifies opportunities for monitoring. Monitoring and/or research project leaders are to be identified. These leaders will be responsible for locating necessary personnel and funding, coordinating, and documenting the monitoring associated with the identified learning objectives.

### *3. consult lead scientist*

The lead scientist for the AMA will be contacted and should be involved early in the process. The scientist is available to provide a research perspective on proposed learning, may assist in developing a study plan, will be responsible for involving appropriate members of the Technical Advisory Panel or scientific community as needed, and may identify opportunities for formal research.

### *4. NEPA planning*

The NEPA planning process will be coordinated in conjunction with development of monitoring and research plans. Public involvement should be encouraged early in the scoping process in addition to comment periods. The Area Assessment will provide a basis for mitigation and alternative development. Project leads will be responsible for initiating and organizing process.

## *5. monitoring*

All AMA specific implementation monitoring questions listed in the Learning Strategy (pgs. 12-18) will be addressed. Effectiveness and validation monitoring will be conducted as specified in the project Environmental Assessment (EA). At a minimum, all NEPA projects will be field reviewed after project completion by the interdisciplinary planning team to assess effectiveness of measures or plans in mitigating impacts or meeting identified objectives. Individual monitoring leaders will provide timely reports to the project file. The project leader will be responsible for ensuring documentation of implementation monitoring and field review findings.

## *6. documentation*

Each respective land management agency will maintain a file drawer location dedicated to the archival of project records and monitoring. Each AMA project will be assigned a code number (FS###, or BLM###) and agencies will share each others file contents. A GIS coverage with associated data base will be developed for accessing monitoring information about individual projects. Leaders will be responsible for timely database entry, analysis, presentation of results (tables, graphs, etc.), and providing writeups for communication efforts.

## *7. communication*

Learning will be communicated to the public using newsletters, published scientific reports, and the AMA home page.

## *Primary Emphasis Areas*

Primary emphasis areas have been identified where management for forest products and watershed restoration will occur for the next three to five years (Figure 3). Primary emphasis areas are where the development and testing of approaches related to the primary AMA strategy and emphasis will be carried out. Watershed restoration should be a component of all timber management activities, regardless of location. However, watershed restoration not connected with (and financed by) timber sales should take place in Cavitt Creek and the reference basins. The Cavitt Creek basin is a designated priority area for coho salmon and cutthroat trout populations where water quality, sediment, and flow regimes need to be restored. The reference basins have healthy channel and riparian conditions serving as sources of aquatic biodiversity. Restoration work and erosion prevention are a focus for the reference basins.

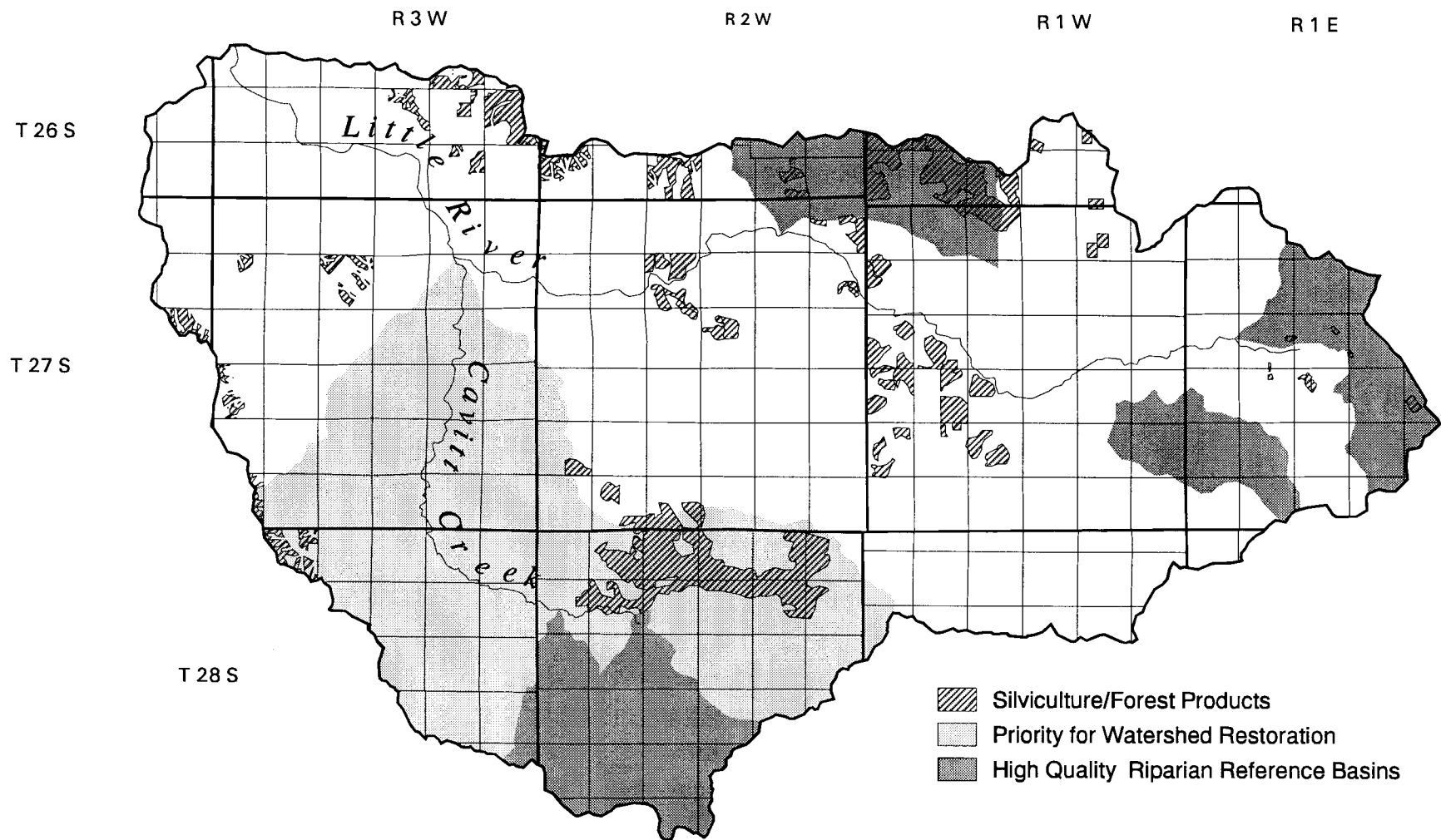


Figure 3. Location of three major emphasis area designations for the Little River AMA: areas for silvicultural treatments and timber harvest, priority areas for watershed restoration and maintenance, and high quality reference basins.

## *Timber Sale Plan*

<b>FY</b>	<b>Agency</b>	<b>Sale Name</b>	<b>Estimated Volume<sup>5</sup></b>
96	FS	Salvage	0.4 mmbf
96	BLM	Sampson Butte Commercial Thinning	1.1 mmbf
96	FS	East Clover Timber Sale	2.1 mmbf
96	FS	Whitecap Commercial Thinning	6.1 mmbf
97	FS	Salvage	2.7 mmbf
97	FS & BLM	Wolfpine Timber Sale	2.8 mmbf
97	BLM	Emile Timber Sale	3.5 mmbf
97	FS	D.E.M.O. Timber Sale	4.0 mmbf
98	BLM	Rattler Timber Sale	2.4 mmbf
98	BLM	Greenman Commercial Thinning	1.1 mmbf
98	FS	Withrow Timber Sale	9.0 mmbf
98	FS	Shadow Commercial Thinning	3.0 mmbf
99	BLM	Britt Commercial Thinning	1.7 mmbf
99	BLM	Copper Cavitt Timber Sale	6.4 mmbf

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<sup>5</sup>The estimated timber volume output for Little River AMA will approximate 100-120 mmbf/decade, subject to change by regulation or policy.



## Project Lists<sup>6</sup>

### *silviculture/forest products*

Fiscal Year	PROJECT (origin)	LEADER/ COOPERATORS	MONITORING	RESTORATION	VOLUME
yearly	precommercial thinning (WA rec. pg. 8)	Mike Creswell (BLM), Ron Campbell (FS)			
96	Sampson Butte Commercial Thinning (Sampson Butte EA, WA rec. pg. 8)	Al James (BLM) Elijah Waters (BLM)	stand structure and composition, stream turbidity	acceleration of late- successional habitat in riparian	1.1 mmbf
97	Wolfpine Timber Sale (Wolfpine EA, WA rec. pg. 4)	Steve Gadd (FS)/ Al James (BLM), Don Goheen (Insect and Disease Technical Ctr.), Mark Huff (PNW), Francisco Molina (Job Corp), Alan Baumann (FS), Chuck Young (FS), Glenn Harkleroad (FS), Elijah Waters (BLM)	pine vigor and mortality	21 mi. road storm- proofing, 1 mi. road decommission, 1 mi. Little River in- stream work	2.8 mmbf
96	East Clover Timber Sale (East Clover EA, WA rec. pgs. 6,8)	Barbara Fontaine (FS)/ Alan Baumann (FS), Laura Ward (FS), Mark Huff (PNW), Francisco Molina (Job Corps), Chuck Young (FS), Scott Lightcap (FS)	stand structure & composition, natural regeneration	13 mi. road storm- proofing, 1 mi. road decommission, .5 mi. Little River in- stream work	2.1 mmbf
97	Emile Timber Sale (Emile EA)	Jim Luse (BLM)	leave tree retention and snag recruitment, stream network impacts	road storm-proofing	3.5 mmbf
96	salvage	Dick Henbest (FS)	none		0.4 mmbf
96-98	Whitecap & Shadow Commercial Thinnings (EAs, WA rec. pgs. 6,8)	George Moyers, Greg Orton, John Ouimet & Don Morrison (FS)/ Mark Huff (PNW)  Don Morrison (FS)/ Mark Huff (PNW)	soil decompaction and forest productivity,  reintroducing western red cedar in riparian areas	7 mi. road storm- proofing 1-2 mi. road decommission, 1 mi. Black Creek in-stream work	9.1 mmbf
97	salvage	Dick Henbest (FS)	none		2.7 mmbf
97	Little River Demonstration of Ecosystem Management Options (D.E.M.O.) Timber Sale (D.E.M.O. study plan, EIS in development)	Debbie Anderson & Barbara Fontaine(FS)/ Mike Amaranthus (PNW), Keith Aubry (PNW)	flora, fauna, and esthetic values in partial harvest	being developed	4.0 mmbf

<sup>6</sup>Dynamic list of current projects. Subject to periodic revision.

Fiscal Year	PROJECT (origin)	LEADER/ COOPERATORS	MONITORING	RESTORATION	VOLUME
98	Rattler Timber Sale	John Patrick (BLM)	to be developed		2.4 mmbf
98	Greenman Commercial Thinning	John Patrick (BLM)	to be developed		1.1 mmbf
98-99	Withrow Timber Sale (Withrow TS EA, WA rec. pg. 2)	Steve Gadd (FS)/ Alan Baumann (FS), Laura Ward (FS), Ray Davis (FS)/ Mark Huff (PNW)	reduce fire hazard and maintain late-successional characteristics	being developed	14.0 mmbf
99	Britt Commercial Thinning	John Patrick (BLM)	to be developed		1.7 mmbf
99	Copper Cavitt Timber Sale	John Patrick (BLM)	to be developed		6.4 mmbf
94-96	Retrospective Thinning Study (OSU PhD dissertation)	John Bailey (OSU), Craig Kintop (BLM)	retrospective evaluation of stand growth and development		na

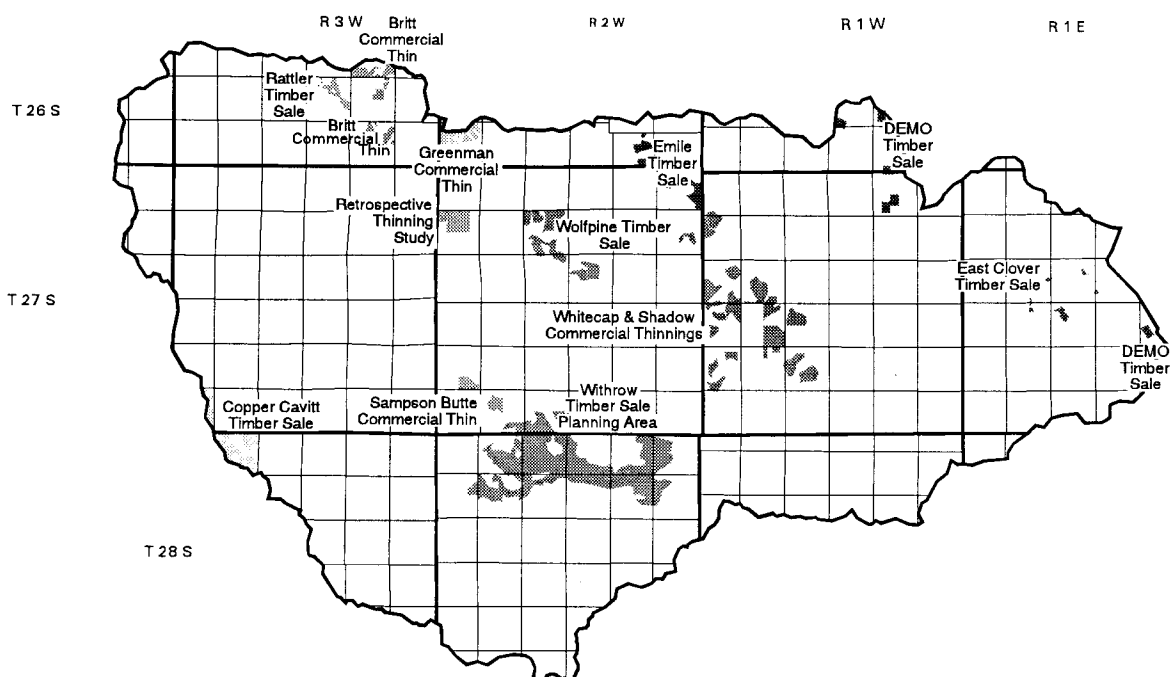


Figure 4. Silviculture/Forest Products Project and Monitoring Locations (this figure and other project maps available as full-page maps).

*fisheries/hydrology*

Fiscal Year	PROJECT (origin)	LEAD/ COOPERATORS	MONITORING
yearly	basin water quality monitoring-continuous: pH, temperature, DO, turbidity (WA rec. pg. 18, BLM/FS files)	Dayne Barron (BLM), Steve Hofford (FS), Trudy Rhodes-Flock (BLM)	establish trends
yearly	basin water quality monitoring-grab sample (volunteer): pH, temperature, DO, turbidity, flow, sediments (WA rec. pg. 18, BLM/FS files)	Dayne Barron (BLM), Steve Hofford (FS), Trudy Rhoades-Flock (BLM)/ Peggy Kaul (Glide Schools), Nancy Stern (Little River Committee)	establish trends
95-01	outmigrant monitoring-Little River fish trap (BLM/FS files)	Elijah Waters (BLM), Scott Lightcap (FS)	establish 5 yr trend
97	effects of thinning vs. no thinning on structure & function of riparian areas (WA rec. pg. 16, Whitecap TS study plan)	Scott Lightcap & Don Morrison (FS)/ Mark Huff (PNW)	controlled experiment
96+	spawning gravel monitoring (WA rec. pg. 20)	Scott Lightcap & Tim La Marr (FS)/ Mark Huff (PNW)	establish baseline, repeat every 5 yrs
94+	water temperature monitoring (WA rec. pg. 18, FS/BLM files)	Steve Hofford, Scott Lightcap (FS) & Trudy Rhodes-Flock, Elijah Waters (BLM)	establish trends
95+	conifer and hardwood planting in riparian areas (Fall Creek planting, WA rec. pg. 14)	Evan Olson (BLM)	standard surveys

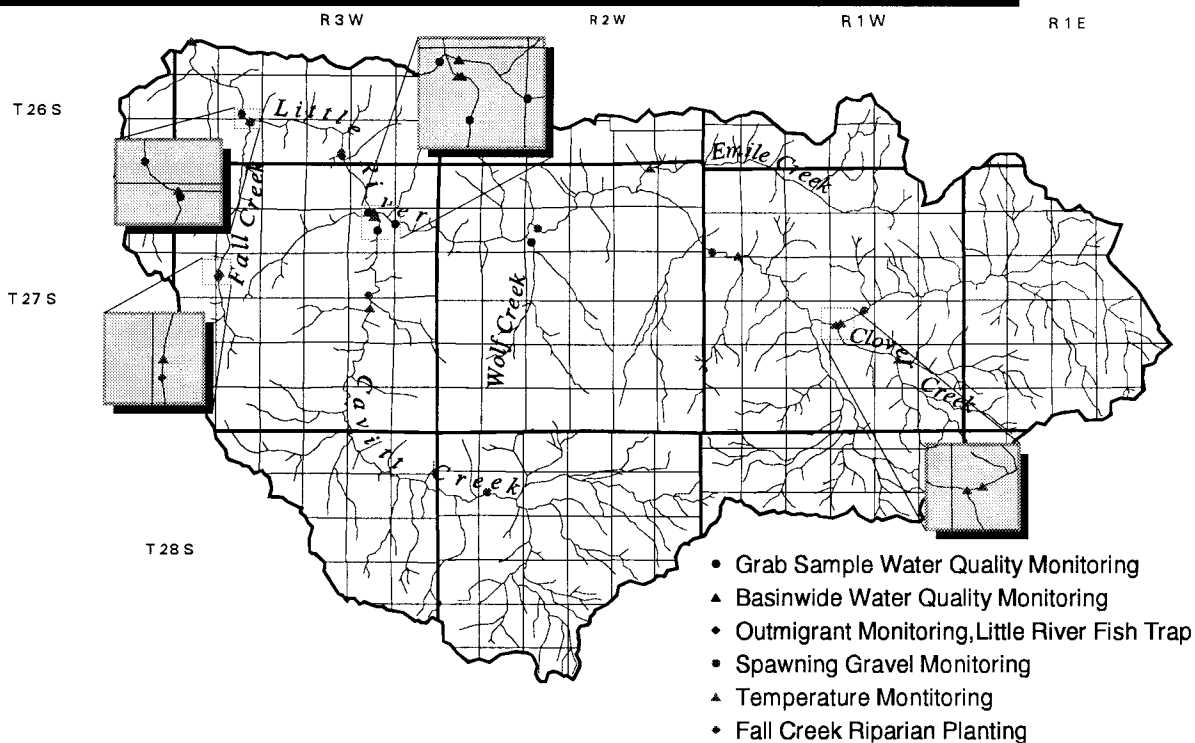


Figure 5. Fisheries/Hydrology Project and Monitoring Locations.

*wildlife*

Fiscal Year	PROJECT (origin)	LEAD/ COOPERATORS	MONITORING
98 or 99	song bird response to thinning -Wolfpine (Wolfpine Study Plan)	Joe Witt (BLM)/ Mark Huff (PNW)	established protocol
98	Peter Paul Prairie controlled burn--elk forage (WA Rec pg. 9)	Ray Davis (FS)	to be arranged
95	amphibian occurrence and distribution (NBS 1995 report)	Ray Davis (FS)	basic inventory
95	red tree vole occurrence and distribution (BLM files)	Jerry Mires (BLM)	managed stand inventory
95	bat telemetry: distribution (BLM/FS report)	Jerry Mires (BLM)/Steve Cross (S. Oregon State College)	inventory
95-99	song bird population response to treatments--Whitecap Thinning	Mark Huff(PNW)/ Ron Maertz (FS)	Controlled experiment
95-96	great gray owl occurrence and distribution (FS files)	Ray Davis (FS)	sale unit inventory
95-96	peregrine falcon occurrence and distribution (sensitive information)	Ray Davis (FS)	basic inventory
97-98	course woody debris in unmanaged stands (WA rec. pg. 8)	Ray Davis (FS),Dayne Barron (BLM)/Craig Tuss (USFWS)	basic inventory
96-98	W. pond turtle inventory (FS/BLM files)	Ray Davis (FS)	basic inventory

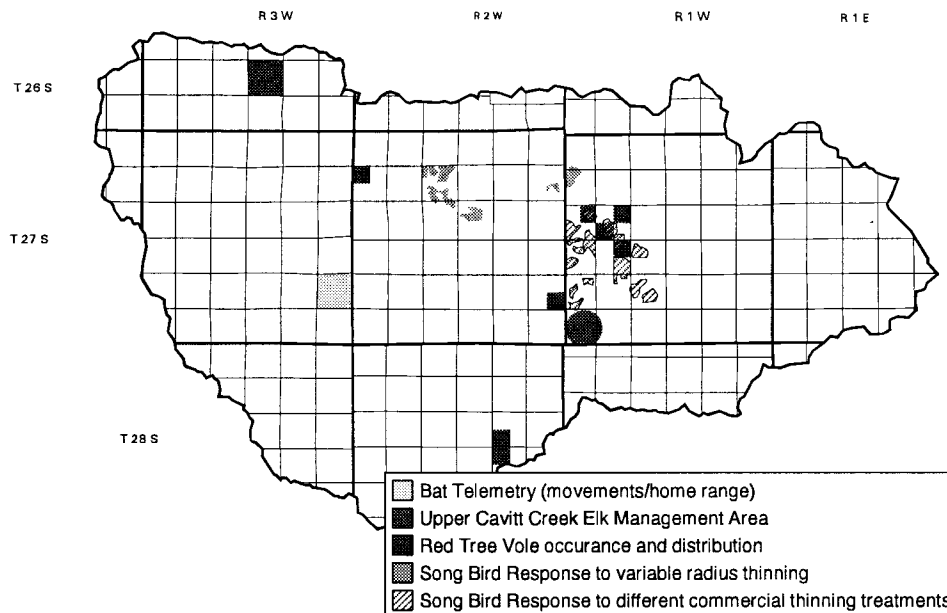


Figure 6. Wildlife Project Locations

*botany*

Fiscal Year	PROJECT (origin)	LEAD/ COOPERATORS	MONITORING
96	fungus inventory-Red Ponds ACEC/RNA	Russ Holmes (BLM)/ Jim Trappe (OSU)	basic inventory
96-98	diffuse knapweed control-27-03-11 (BLM RMP and WA)	Russ Holmes (BLM)	
96-05	mariposa lily monitoring-26-03-34 (Conservation Strategy)	Russ Holmes (BLM)/ Nan Vance (PNW)	controlled experiment
98	Effects of soil decompaction on Woodland milk vetch (E Clover EA)	Lisa Wolf (FS)/ Richard Helliwell (FS)	controlled experiment
96+	Lichen Inventory	Lisa Wolf (FS)/ Abby Russo, Bruce McCune (OSU)	basic inventory

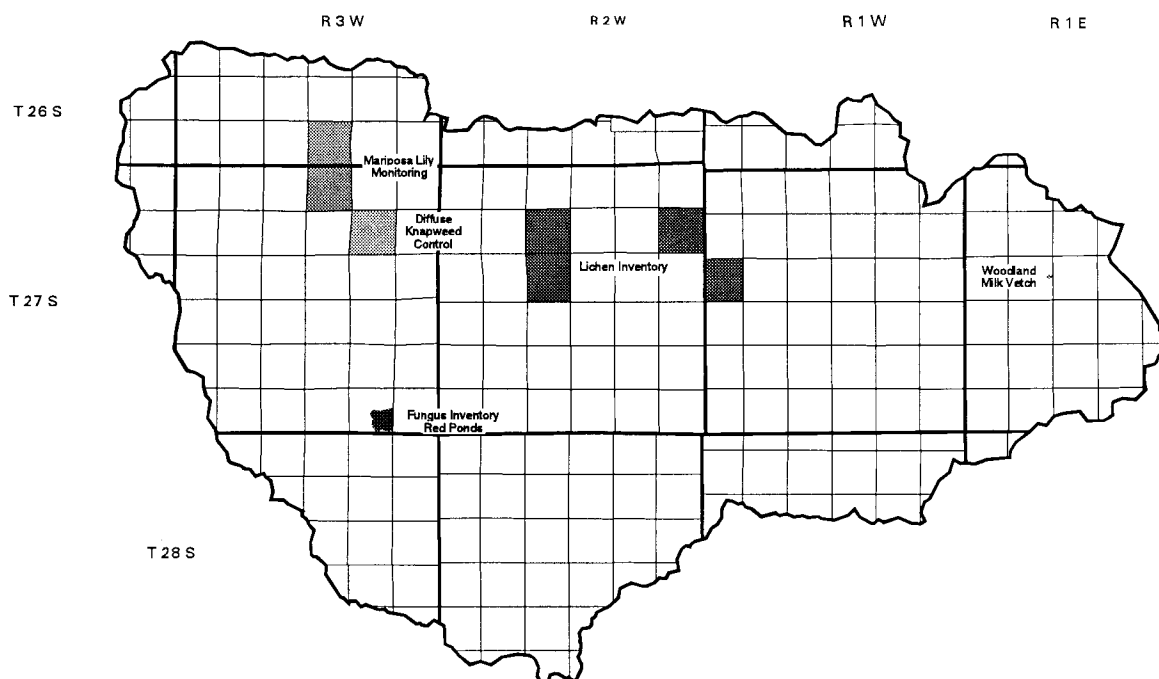


Figure 7. Botany project locations.

*recreation*

Fiscal Year	PROJECT (origin)	LEAD/ COOPERATORS	MONITORING
97 & 98	improvements-Cavitt Creek Campground	Dave Erickson (BLM)	
	trail improvement-Wolf Creek Falls	Dave Erickson (BLM)	
	build trails-hiking, horse, mtn. bike	Dave Erickson (BLM)	
yearly	trail maintenance	R. Bailey (FS)	
97 & 98	replace camp ground bulletin boards	R. Murphy (FS)	
97 & 98	improvements-Cavitt Tie Trail	R. Bailey (FS)	
99 & 00	fishing platform-Lake-in-the-Woods Campground	W. Brady (FS)	

*fire/fuels*

Fiscal Year	PROJECT (origin)	LEAD/ COOPERATORS	MONITORING
96-97	landscape analysis of fire regime (OSU study proposal, WA rec. pg. 2)	Kelli Van Norman (OSU & national Science Foundation), Mark Huff (PNW)/ Laura Ward (FS), Dayne Barron (BLM)	retrospective evaluation of fire history

*social*

Fiscal Year	PROJECT (origin)	LEAD/ COOPERATORS	MONITORING
yearly	Glide Schools partnership (WA rec. pg. 21, S&EA rec. pg. 31)	Dayne Barron (BLM)/ Debbie Anderson (FS), Dean Pindell (Glide Middle School)	water quality

# FUNDING STRATEGY

An expectation of all Adaptive Management Areas is the exploration and innovation of funding sources that provide program stability. This includes team work in garnering support from diverse entities for adaptive management projects and research. Individual project leaders, in cooperation with the AMA Coordinators, are responsible for locating sources to fund activities that are expected to exceed base level funding for management and monitoring. The agency AMA coordinators will regularly confer on joint project funding opportunities and priorities. Creative use of existing funding sources and determining how to "do more with less" are areas that need consideration. Non-traditional funding should be explored as supplements to shrinking land management agency budgets. This type of funding includes combining efforts with other agencies and private entities into partnerships and grants. Partnership development is integral to the Little River Adaptive Management Area funding strategy. Another vital component of the funding picture, whatever the source, is the availability of personnel to perform the work. Agency management support for adequate staff to work on AMA projects is critical.

## Sources

### *federal agency*

*USDA Forest Service.* The Umpqua National Forest prepares one budget per year, with a mid-year adjustment in March. This budget is called the Field Budget and is published in July for the upcoming fiscal year.<sup>7</sup> The field budget serves as an interim budget until Umpqua's share of the jointly approved Presidential/Congressional budget is distributed. Conservative assumptions are made in years of uncertainty. Differences between the Field Budget and the Regional Budget (Region 6 share of Presidential/Congressional budget) are resolved in conjunction with the first financial review of the fiscal year.

**Renewable Resource Management and Utilization (32)**, the traditional budget activity for forest management operations includes: **recreation use (32.1)**; **wildlife and fish management (32.2)**; **forest land management (32.4)**; and **soil, water, and air management (32.5)**. The recreation subactivity includes recreation management, trail maintenance, and heritage resources. Wildlife and fish management consists of wildlife habitat management, threatened, endangered and sensitive species habitat management, and anadromous fish habitat management. Timber sales management and forest land vegetation management are covered under the forest land management subactivity. Soil, water, and air management includes operations and watershed improvements. **Infrastructure management (33.3)** is the budget line item that includes road maintenance.

Other areas of funding that may apply to AMA activities include **Presuppression and Fuels Management (51.1)**. **Jobs in the Woods (JITW)** is budgeted according to whatever subactivity projects address employing the public in ecosystem restoration. **Knutson-Vandenberg Act (KV)** funds, accumulated from timber sale receipts, are applied to

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<sup>7</sup>Activity codes used in this plan apply to FY 1996 (Oct. 1-Sept. 30). Code designations may change with budget years.

sale area improvement operations, maintenance and construction for restoration, timber stand improvement, wildlife and fish habitat, soil and watershed, and recreation according to the KV plan for each sale.

*USDI Bureau of Land Management.* Budget planning at the District level begins in spring and early summer before the upcoming fiscal year. This is called the Internal Preliminary Annual Work Plan (IPAWP) process where initial strategies are formulated based on current year funding with a percentage adjustment. The PAWP is assembled in September according to State Office directives with the Annual Work Plan approval in December or January of most years. Funding codes are used for allocating funds to different activities and for tracking accounts.

The primary funding for forest management programs in Western Oregon are from the **Resources Management (6300)** and the **Other Forest Resources (6330)** activities. Two subactivities under **Resources Management** are **forest management (6310)** which includes money for planning, inventory, trespass, maintenance and enhancement of the forest ecosystem and all aspects of timber and special forest product sales and **reforestation and forest development (6320)** which is slated for reforestation and intensive management of pre-commercial stands. **Other Forest Resources** includes **recreation management (6332)**; **soil, water and air management (6333)**; and **wildlife habitat management (6334)**. The recreation subactivity is for management and protection of recreational values and operations of recreational facilities not including costs of maintaining or constructing facilities. **Soil, water, and air management** is for the management, development, and protection of those resources including actions directly benefitting riparian areas. **Wildlife habitat management** includes costs associated with maintaining or enhancing fish and wildlife habitat. **Road Maintenance** is appropriated under another activity, **9110**.

Additional funding areas may be available for AMA projects. Fuels management is covered by the **Fire Use and Management (1510)** activity. **Facilities Maintenance (6210)** includes upkeep of buildings, roads and trails. **Jobs in the Woods (6650)** includes costs associated with ecosystem restoration projects that are contracted to the private sector. Costs for salvage of dead and dying timber, and maintenance or enhancement of effected ecosystems are funded through **Forest Ecosystems Health and Recovery (5900)** collection funds. Monies contributed by a non-federal entity for costs of protection and improvement of public land is distributed through the **FLPMA (7122)** category. State agency funds contributed for wildlife and fisheries purposes are held in the **Sikes Act (7124)** fund. Forest protection and utilization transfers from the U.S. Forest Service include the funding categories **Blister Rust Control (9610)** and **Forest Pest Control (9620)**.

*USDI Fish and Wildlife Service.* Budget planning at the field level begins in the summer preceding the fiscal year; at the program level, it begins approximately 18 months preceding the fiscal year. Program level funding is based on current year funding with a percentage adjustment. January would be an appropriate time to discuss AMA projects. Funding codes are used for allocating funds to various activities.

The primary funding for activities within the Adaptive Management Area would be from the **Forest Resources Category**. This includes **forest planning (1113-1035)**, **watershed analysis (1113-1038)**, and **consultation/habitat conservation (1112-1036)**. Also available are **Jobs in the Woods funds (1126)**. Fish and Wildlife Service JITW dollars can be spent on private ownership.

Other potential funding sources may be available through **habitat restoration (1121)**, **wetland reserves program funding (1900)**, **endangered species funding (1111, 1112, 1113)**. Another potential source is the **federal aid program**. This program is available to state agencies for work on non-federal lands to conduct habitat restoration, conservation, and research.



## *partnerships*

The federal agencies are directed in the Northwest Forest Plan to facilitate collaborative efforts, partnerships, mutual learning, and innovation. The land management agencies continue to pursue opportunities to involve other individuals and organizations with adaptive management projects and research as part of the public involvement strategy.

**Memoranda of Understandings (MOUs)** are often the appropriate vehicle to document the role of individual partners where there is no exchange of funds, property, services, or anything of value. Where only federal agencies are involved and there is an exchange of funds, an **Interagency Agreements (IA)** is needed. A **Cooperative Agreement** is the instrument used for transfer of money, property, or services between the government and public partners. Money, equipment, property, or products can be accepted by the Federal government from a non-federal party using a **Collection Agreement**. (See discussion under Public Involvement for current partnerships).

**Challenge cost share** is a matching funds program between federal agencies and non-federal parties. Competitive bidding is not required for this type of agreement. The Forest Service uses a **Challenge Cost Share Agreement** to execute a cooperative project. The BLM vehicle is a Cooperative Agreement that requires Washington office approval.

**The Cooperative Funds and Deposits (Ulman) Act** (PL 94-148) provides authority for the Forest Service to enter into cooperative agreements with private individuals. Types of programs covered by this act are job training and development programs, development and publishing of environmental education and forestry history materials, and forest protection including fire protection, timber stand improvement, and debris removal. Advances or reimbursement to cooperators is authorized from appropriation available for similar types of work. In addition to funds, the Forest Service may also supply materials, supplies, facilities, or equipment. This act provides a means to secure resources for a project without competition.

The Federal Technology Transfer Act authorizes the Forest Service to enter into **Cooperative Research and Development Agreements**. Federal laboratories may provide personnel, services, facilities, equipment, or other resources without reimbursement for research and project work. The Act does not authorize transfer of funding by the Forest Service to non-Federal parties but it does allow for funds to be transferred from the non-Federal party.

## *grants*

What follows are listings for several potential grant sources for Adaptive Management Area programs. It is by no means an exhaustive list of funding possibilities for ecosystem management projects.

*Fish and Wildlife Foundation.* The National Fish and Wildlife Foundation (NFWF) is a nonprofit organization dedicated to the conservation of natural resources -- fish, wildlife, and plants. Among its goals are species habitat protection, environmental education, public policy development, natural resource management, habitat and ecosystem rehabilitation and restoration, and leadership training for conservation professionals. It meets these goals by forging partnerships between the public and private sectors and by supporting conservation activities that pinpoint and solve the root causes of environmental problems. The Foundation invests in solutions to those problems by awarding challenge grants using its federally appropriated funds to match private sector funds. Six priority program areas are wetland conservation, conservation education, fisheries initiative, neotropical migratory bird conservation, conservation policy, and wildlife habitat.

All grants provided by NFWF are challenge grants. NFWF awards federal funds appropriated by Congress which must, in turn, be matched by non-federal funds (two-to-one, non-federal to federal) raised by the applicant. To be

considered, an applicant must first submit a one-page preproposal to NFWF. The preproposal should contain a summary of the project, including objectives, target audience, methodology, delivery system and projected budget. The deadlines for submitting preproposals are March 30, July 31, and November 30 (two weeks prior to the corresponding full proposal deadline). If the preproposal meets NFWF's funding guidelines, the applicant will be invited to submit a full proposal, which includes a completed grant application form, together with all appropriate attachments to NFWF.

*Rocky Mountain Elk Foundation.* The Rocky Mountain Elk Foundation (RMEF) is an international wildlife habitat, nonprofit conservation organization whose mission is to ensure the future of elk, other wildlife and their habitat. The primary focus is habitat conservation but other areas include conservation education and hunting heritage. Funding requests should fall into one of the following categories: habitat enhancements, management, research, conservation education, hunting heritage, or land conservation. RMEF State Advisory Committees review all project proposals and make funding recommendations. Agency proposals should be submitted through the agency's representative to the committee.

*National Forest Foundation.* The National Forest Foundation was created by Congress as the official nonprofit partner of the U.S. Forest Service. The foundation supports programs, projects, and services that are not receiving adequate funding or may be curtailed or eliminated. Increasing the American people's awareness and appreciation of the great natural resource legacy is the second component of the organization's mission.

The foundation supports efforts in conservation, recreation, youth, and education and outreach. Through partnerships, the National Forest Foundation has planted over 70,000 trees since 1994 and funded various FS conservation projects on national forests. Since its creation, the foundation has been committed to funding projects which create, expand, and improve universal access for recreational activities. The Youth Forest Camps area program for 15-18 year olds takes them into national forests for a summer and gives them the opportunity to work, live in a rustic setting, learn to live cooperatively, and acquire valuable work and life skills. A firefighter fund provides for the families of firefighters injured or killed in the line of duty. The foundation has worked with the Center for Wildlife Information (CWI) to sponsor a series of NatureWatch posters, a Give Them Room to Live brochure, and several other wildlife projects. The foundation is in the process of creating a \$1000 scholarship for students focusing on forestry or natural resources.

*American Forest's Global ReLeaf.* The organization's mission is to educate the public about the value of trees and the need to properly select, plant, and maintain them. Projects that have the best chance of being selected are those which share support with other partners, have appeal for wildlife and fisheries habitat enhancement, qualify for challenge grants, or restore woody vegetation damaged by past disturbance. Public lands available for funding through this program include those which are out of the harvestable base, acquired by exchange, and those with special wildlife needs. Neotropical bird habitat, restoration of trees to desert environments, and restoration of trees important to fish habitat are examples of desirable objectives.

*Oregon's Watershed Enhancement Program.* Oregon's Watershed Enhancement Program uses grant monies and technical expertise to encourage landowner, volunteer, and agency participation in the work of preserving, protecting, and enhancing watersheds. Three primary functions of the program are to provide technical assistance to those undertaking watershed enhancement programs, to manage a grant program for watershed projects, and to promote education and public awareness about watershed enhancement. The Governor's Watershed Enhancement Board

(GWEB) directs the Watershed Enhancement Program. The Board is composed of five voting members from state natural resource commissions and five non-voting members from other state and federal agencies. Grant proposals should be coordinated with the local watershed council.

*Environmental Protection Agency (EPA) Non-Point Source Program, Section 319.* The EPA's 319 program provides funds to identify and quantify non-point sources of pollution<sup>8</sup> and to initiate best management practices or engineering controls. States may use section 319 funds for enforcement, technical assistance, financial assistance, education, training, technology transfer, demonstration projects, and monitoring to assess the success of specific nonpoint source implementation projects. States have the flexibility to use section 319 grant funds in a manner that they determine will best implement their nonpoint source management programs. The program is administered by the Department of Environmental Quality (DEQ) in Oregon. Grant work plans should link the funded activities or projects to the relevant element or elements of the States' nonpoint source management program. Work plans should also indicate which Federal, State and local agencies are responsible for implementing each project or activity. Section 319(h)(3) provides that the non-EPA share should meet or exceed 40% of the project cost. Funding through this program should be coordinated with the county watershed council.

*Northwest Economic Adjustment Initiative.* The Northwest Economic Adjustment Initiative (NEAI) is a federal program established to address the impact of reduced harvest on federally managed forests in western Oregon. The program is a cooperative effort of federal, state, and county government. Project proposals are submitted from individual counties to the State Community Economic Revitalization Team (SCERT) where they are evaluated and funded. The SCERT addresses funding potential through a committee structure for four areas; community and infrastructure, business and industry, worker and family, and ecosystem investment.

A component of the NEAI is the multi-agency (FS, BLM, USFW, and BIA) Jobs in the Woods program. Jobs in the Woods is not a "grant" program (it is part of allocated agency funding), but is mentioned here because it is a component of NEIA. Objectives for this program include restoring watershed health, providing employment for displaced timber workers, promoting a watershed based approach, and improving partnerships with local communities. The SCERT provides policy direction for agency budgeting decisions through the ecosystem investment sub-committee.

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<sup>8</sup>Nonpoint source pollution is caused by rainfall or snowmelt moving over and through the ground and carrying natural and human-made pollutants into lakes, rivers, streams, wetlands, estuaries, other coastal waters, and ground water sources of pollution.

# *ACRONYMS*

<b>ASQ</b>	Allowable Sale Quantity
<b>BLM</b>	Bureau of Land Management
<b>BIA</b>	Bureau of Indian Affairs
<b>BMP</b>	Best Management Practices
<b>D.E.M.O.</b>	Demonstration of Ecosystem Management Options
<b>DEQ</b>	Department of Environmental Quality
<b>EA</b>	Environmental Assessment
<b>EIS</b>	Environmental Impact Statement
<b>EPA</b>	Environmental Protection Agency
<b>ESA</b>	Endangered Species Act
<b>FEMAT</b>	Forest Ecosystem Management Assessment Team
<b>FLPMA</b>	Federal Land Policy and Management Act
<b>FS</b>	Forest Service
<b>FY</b>	Fiscal Year
<b>GIS</b>	Geographic Information System
<b>GWEB</b>	Governor's Watershed Enhancement Board
<b>IPAWP</b>	Internal Preliminary Annual Work Plan
<b>JITW</b>	Jobs In The Woods
<b>KV</b>	Knutson-Vandenberg
<b>LRMP</b>	Land and Resource Management Plan
<b>LS</b>	Late-Successional Forest
<b>LWD</b>	Large Woody Debris
<b>MBF</b>	Thousand Board Feet
<b>MMBF</b>	Million Board Feet
<b>MOU</b>	Memorandum Of Understanding
<b>NEAI</b>	Northwest Economic Adjustment Initiative
<b>NF</b>	National Forest
<b>NFWF</b>	National Fish and Wildlife Foundation
<b>NWFP</b>	Northwest Forest Plan
<b>OG</b>	Old-Growth Forest
<b>OSU</b>	Oregon State University
<b>PAWP</b>	Preliminary Annual Work Plan
<b>PAC</b>	Province Advisory Committee
<b>PIEC</b>	Province Interagency Executive Committee
<b>PNW</b>	Pacific Northwest Research Station
<b>PSQ</b>	Probable Sale Quantity
<b>RMP</b>	Resource Management Plan
<b>RMEF</b>	Rocky Mountain Elk Foundation
<b>ROD</b>	Record Of Decision
<b>SCERT</b>	State Community Economic Revitalization Team
<b>TAP</b>	Technical Advisory Panel
<b>S&amp;G</b>	Standards And Guidelines
<b>UBFRI</b>	Umpqua Basin Fisheries Restoration Initiative

**USFWS**  
**WA**

US Fish and Wildlife Service  
Watershed Analysis

# GLOSSARY

**aquatic ecosystem** - Any body of water, such as a stream, lake or estuary, and all organisms and non-living components within it, functioning as a natural system

**adaptive management** - A continuing process of action-based planning, monitoring, researching, evaluating, and adjusting.

**adaptive management area (AMA)** - A land allocation designated by the Northwest Forest Plan for development and testing of technical and social approaches to achieving desired ecological, economic, and other social objectives.

**age class** - A management classification using the age of a stand of trees.

**allowable sale quantity (ASQ)**- The gross amount of timber volume, including salvage, that may be sold annually from a specified area over a stated period in accordance with management plans of the Forest Service or Bureau of Land Management.

**anadromous fish** - Fish that are born and rear in fresh water, move to the ocean to grow and mature, and return to freshwater to reproduce.

**area assessment** - An evaluation of the historical, current, and desired future conditions of the biophysical, social, and economic aspects of an area. Also refers to the documentation itself.

**biological diversity** - The variety of life forms and processes, including a complexity of species, communities, gene pools, and ecological functions.

**bryophytes** - Plants of the phylum Bryophyta, including mosses, liverworts and hornworts, characterized by the lack of true roots, stems, and leaves.

**canopy closure** - The degree to which the canopy (forest layers above one's head) blocks sunlight or obscures the sky.

**cavity nester** - Wildlife species, most frequently birds, that require cavities (holes) in trees for nesting and reproduction.

**course woody debris** - Portion of a tree that has fallen or been cut and left in the woods. Usually refers to pieces at least 20 inches in diameter.

**connectivity** - A measure of the extent to which conditions among late-successional/old-growth forest (LS/OG) areas provide habitat for breeding, feeding, dispersal, and movement of LS/OG-associated wildlife and fish species.

**cumulative effects** - Those effects on the environment that result from the incremental effect of the action when added to the past, present, and reasonably foreseeable future actions regardless of what ownership or person undertakes such actions.

**debris flow** - A rapid moving mass of rock fragments, soil, and mud, with more than half of the particles being larger than sand size.

**decommission** - To remove those elements of a road that reroute hillslope drainage and present slope stability hazards.

**dispersal habitat** - Habitat that supports the life needs of an individual animal during dispersal. Generally satisfies needs for foraging, roosting, and protection from predators.

**early-successional forest** - Forest seral stages younger than mature and old-growth age classes.

**ecology** - The science of the interrelationships of organisms in and to their complete environment.

**ecosystem management** - The use of an ecological approach in land management to sustain diverse, healthy, and productive ecosystems. Ecosystem management is applied at various scales to blend long-term societal and environmental values in a dynamic manner that may be adapted as more knowledge is gained through research and experience.

**endangered species** - Any species of plant or animal defined through the Endangered Species Act as being in danger of extinction throughout all or a significant portion of its range, and published in the Federal Register.

**environmental assessment (EA)** - A systematic analysis of site-specific activities used to determine whether such activities have a significant effect on the quality of the human environment and whether a formal environmental impact statement is required.

**even-aged management** - A silvicultural system which creates forest stands that are primarily of a single age or limited range of ages. Creation of even-aged stands may be accomplished through the clearcut, seedtree, or shelterwood regeneration methods.

**fish-bearing streams** - Any stream containing any species of fish for any period of time.

**fire regime** - The characteristic frequency, extent, intensity, severity, and seasonality of fires in an ecosystem.

**green tree retention** - A stand management practice in which live trees are left as biological legacies within harvest units to provide habitat components over the next management cycle.

**intensive timber production** - Managing stands to obtain a high level of timber volume or quality through investment in growth enhancing practices, such as precommercial thinning, commercial thinning, genetic improvement, fertilization, and stand protection.

**interior forest** - Expansive areas of unfragmented, continuous, old-growth forest.

**late-successional forests** - Forest seral stages which include mature and old-growth age classes.

**late-successional reserve (LSR)** - A land allocation designated by the Northwest Forest Plan designed to protect and enhance conditions of late-successional and old-growth forest ecosystems.

**legacies** - Green trees, snags, and down logs that are left after harvest to provide an ecological continuity of structural features.

**managed stands/forest** - Any forest land that has been treated with silvicultural practices and/or harvested. Generally applied to land that is harvested on a scheduled basis and contributes to an allowable sale quantity.

**matrix** - Federal lands outside of Late Successional Reserves, Adaptive Management Areas, Managed Late-Successional Areas, Administratively Withdrawn Areas, and Riparian Reserves. Most timber harvest not taking place in Adaptive Management Areas takes place in matrix.

**monitoring** - A process of collecting information to evaluate if objective and anticipated or assumed results of a management plan are being realized or if implementation is proceeding as planned.

**National Environmental Policy Act (NEPA)** - An act passed in 1969 to declare a National policy that encourages productive and enjoyable harmony between humankind and the environment, promotes efforts that prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of humanity, enriches the understanding of ecological systems and natural resources important to the nation, and establishes a Council on Environmental Quality.

**natural regeneration** - the renewal of a tree crop by self-sown seed or by vegetative means

**old-growth forest** - A forest stand usually at least 180-220 years old with moderate to high canopy closure; a multilayered, multispecies canopy dominated by large overstory trees; high incidence of large trees, some with broken tops and other indications of old and decaying wood (decadence); numerous large snags; and heavy accumulations of wood, including large logs on the ground.

**precommercial thinning** - The practice of removing some of the trees less than merchantable size from a stand so that remaining trees will grow faster.

**prescribed fire** - A fire burning within an approved, predefined and planned prescription. The fire may result from either a planned or natural ignition.

**primary emphasis areas** - Forest stands that have been designated by the land management agencies for development and testing of approaches to the integration of intensive timber production and restoration and maintenance of high quality riparian habitat.

**probable sale quantity (PSQ)** - The allowable harvest levels that could be maintained without decline over the long-term if the schedule of harvests and regeneration were followed.

**project leaders** - Individuals responsible for initiating projects, finding the necessary funding, leading the NEPA process, and insuring that the necessary documentation is completed in a timely manner. Additional leads may be attached to specific aspects of project monitoring with similar accountability for work completion.

**reforestation** - The natural or artificial restocking of an area with forest trees; most commonly used in reference to artificial stocking.

**refugia** - Locations and habitats that support populations of organisms that are limited to small fragments of their previous geographic range.



**riparian area** - A geographic area containing an aquatic ecosystem and adjacent upland areas that directly affect it. This includes floodplain, woodlands, and all areas within a horizontal distance of approximately 100 feet from the normal high water of a stream channel or from the shoreline of a standing body of water.

**riparian reserve** - A land allocation designated by the Northwest Forest Plan consisting of the stream or body of water and a specified buffer where riparian-dependent resources receive primary emphasis.

**rotation** - the planned number of years between regeneration of a forest stand and final harvest. A forest's age at final harvest is referred to as rotation age.

**second-growth** - Relatively young forests that have developed following a disturbance (cutting, fire, or insect attack) of the previous old-growth forest.

**seral stages** - The series of relatively transitory plant communities that develop during ecological succession from bare ground to the climax stage.

**silvicultural system** - A planned sequence of treatments or prescriptions over the entire life of a forest stand needed to meet management needs.

**stand** - A reasonably homogeneous forest unit that is differentiated by age, composition, structure, site quality, or geography.

**snag** - Any standing dead, partially dead, or defective (cull) tree at least 10 inches in diameter at breast height and at least 6 feet tall.

**standards and guidelines (S&Gs)** - The regulations applying to federally managed lands within the range of the spotted owl.

**structural diversity** - The diversity of forest structure, both vertical and horizontal, that provides for a variety of forest habitats for plants and animals.

**timber production** - The purposeful growing, tending, harvesting, and regeneration of regulated crops of trees to be cut for industrial or consumer use other than fuelwood.

**underburning** - Prescribed burning of the forest floor or understory for botanical or wildlife habitat objectives, hazard reduction, or silvicultural objectives.

**watershed** - The drainage basin contributing water, organic matter, dissolved nutrients, and sediments to a stream or lake.

**watershed analysis** - A systematic procedure for characterizing watershed and ecological processes to meet specific management and social objectives.

# APPENDIX

## *A. Contacts*

### *coordination*

AMA Coordinator/District Ranger

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## ***B. Communities***

### *communities of place*

#### *government agencies and related organizations*

Douglas County Board of Commissioners  
Douglas County OSU Extension Service  
Cow Creek Band of Umpqua Indians  
Oregon Department of Environmental Quality  
Oregon Department of Fish and Wildlife  
Oregon Department of Forestry  
Southwest Oregon Resource Conservation and Development Council  
US Environmental Protection Agency  
USDA Forest Service  
USDA Job Corp  
USDA Natural Resources Conservation Service/Soil and Water Conservation District  
USDC National Marine Fisheries Service  
USDI Bureau of Land Management  
USDI Fish and Wildlife Service

#### *cities and towns*

Glide  
Idleyld Park  
Roseburg  
Wilbur  
Winchester  
Winston  
Sutherlin

### *communities of interest*

#### *community based action groups*

Glide Community Club

#### *conservation organizations*

Umpqua Watersheds  
Umpqua Audubon  
Little River Committee

#### *fisheries*

Northwest Steelheaders  
Umpqua Fisherman  
Steamboaters

*forestry/forest industry organizations*

Douglas Timber Operators  
Evergreen  
Society of American Foresters Umpqua Chapter  
TREES  
Workers of Oregon Development

*landowner organizations*

Douglas County Small Woodland Owners

*local watershed council*

Umpqua Basin Fisheries Restoration Initiative

*recreational groups*

Boy Scouts of America  
Community Trail Volunteers  
Edelweis Ski and Hike Club  
Friends of the Umpqua  
Mid Oregon Dirt Diggers  
Native Plant Society  
Northwest Rafter's Association  
Oregon Equestrian Trails  
Oregon Hunter's Association  
Roseburg Mountain Bike Club  
Ruff Country 4 Wheelers  
South Douglas Gem and Mineral Club  
Umpqua Trail Council

*state's rights organizations*

Douglas County Advisory Council

## *C. Project Descriptions*

The following are a more detailed description of projects listed in tables starting on page 23.

### *development and testing of new approaches*

#### *Douglas-fir plantations*

**issue:** During the 1940's and 50's, 7,482 acres of public land was clearcut and reforested with Douglas-fir (1,044 acres of BLM and 6,438 acres of Forest Service administered land). A proportion of these plantations are not growing at their maximum potential due to high tree densities. These areas also have little diversity in vegetative structure and composition, unlike the forests that preceded them. Moreover, many of the early Forest Service plantations are located in gentle terrain, within moist/warm growing sites that historically burned less frequently, supporting more stable, long-term late-successional forests. In their current state, the potential for large down wood contributions to riparian areas is diminished and the plantations are unsuitable habitat for a wide variety of animal and plant species.

**objective:** Improve timber production capabilities and where appropriate, provide future late-successional forests and interior forest habitats.

**learning:** Develop thinning treatments to enhance tree growth while enhancing biological diversity. Test the effectiveness of different treatments in both riparian and upland plantations.

**social values:** Increase growth and vigor of young stands while creating biological diversity.

**specific projects:** Forest Service: Whitecap, Shadow, Thunder, Middle Little River, Upper Little River, Dutch, and Withrow Commercial Thinnings. BLM: Sampson Butte Commercial Thinning.

#### *pine maintenance and restoration*

**issue:** Sugar pine and western white pine populations are declining rapidly throughout Southwest Oregon. This condition seems to be associated with the long-term cumulative effects of fire exclusion in combination with white pine blister rust and pine beetles.

**objective:** Improve growth and establishment conditions for pine in appropriate locations.

**treatments:** Develop and test methods of thinning around remaining live trees and use of prescribed fire to restore and maintain populations. Plant rust resistant sugar and western white pine in young Douglas-fir plantations to determine if the species can be reestablished under these conditions.

**learning:** Understand what treatments are needed to restore and maintain pine and minimize disease and insect impacts to the species; test applications of prescribed understory fires.

**social values:** Create ecological conditions to restore/maintain a disappearing tree species that is both ecologically

and commercially valuable.

**specific projects:** Forest Service and BLM: Wolfpine timber sale and cooperative study with Southwest Oregon Forest Insect and Disease Technical Center, PNW Research Station, and the Wolf Creek Civilian Conservation Corps.

### *late-successional forest prone to fire*

**issue:** Much of the late seral forest in Little River that remains today is located in areas that are naturally prone to burning because these stands are located in steep topography on warm dry aspects. Many of these areas burned as stand replacing fires around the turn of the century. Harvest of these areas was put-off due to their relatively younger age and lower wood volume compared to areas in gentler terrain and/or wetter conditions with older, larger trees. Meanwhile, decades of fire exclusion has altered forest structure in these dry sites, making them more prone to catastrophic wildfires. Consequently, much of the late-successional forest in the watershed is at risk of being lost to wildfires, including spotted owl nest areas that are to be protected under the ROD.

**objective:** Change live and dead standing and down vegetation structure to lessen the chances of stand-replacing fires and to minimize risk of losing existing late-seral habitat and spotted owl nesting areas.

**learning:** Develop and test methods of thinning, group selection harvest, prescribed understory fire and snag creation to restore late-successional forest structure that approximates the natural fire regime on warm/dry slopes within the Little River Watershed. Learn how to minimize fire risks, while managing for wood products and late-successional species habitat.

**social values:** Lessen the risks of fire and loss of resources, provide timber volume to local communities.

**specific projects:** Forest Service: Withrow, Thunder, Burnt Fall, and Red Butte Timber Sales.

### *restoration of compacted soils*

**issue:** Over the past several decades routine tree harvesting practices e.g., tractor yarding, have compacted fine-textured soils. Reduced tree growth, shallow root development, trees prone to windthrow, and poor soil water infiltration have been observed. Forest productivity is reduced up to 30 percent compared to similar sites with uncompacted soil.

**objectives:** Determine if mechanical subsoiling is an effective and efficient technique for restoring soil structure and functions found in uncompacted soils.

**learning:** Establish if subsoiling is a practical method for restoring soil structure and functions in these fine-textured soils, as has been found for coarser soils in eastern Oregon. Monitor tree growth, biomass production, changes in soil structure, and soil processes, e.g., movement of water and development of soil flora and fauna and organic matter.

**social values:** Techniques, if successful, could be applied broadly to other private and public lands to improve soil productivity and tree growth and provide raw wood to the local communities.

**specific projects:** Forest Service: Whitecap, Shadow and East Clover Timber Sales.

### *harvesting to maintain late-successional forest characteristics*

**issue:** Alternative harvesting practices that maintain late-successional forest conditions over time need to be developed and tested.

**objectives:** Determine how various green tree retention levels and patterns used in harvest prescriptions influence flora, fauna and aesthetic attributes of unmanaged forests.

**treatments:** Test several levels of tree retention, both scattered and grouped. Use prescribed fire as a tool to prepare seedbeds for natural regeneration.

**learning:** Determine if species and ecological conditions associated with late-successional forests are maintained at the stand-level over time with tree harvesting and reintroduction of understory fires. Monitor tree establishment, plant species composition and cover, and animal community composition and abundance. Monitor snag retention/recruitment and down woody debris.

**social values:** Maintain late-successional species; natural regeneration of forest trees, reduce planting costs, provide timber volume to local communities.

**specific projects:** Forest Service: Little River D.E.M.O. Timber sale, East Clover Timber Sale.

### *proportional size-class thinning*

**issues:** Stagnated tree growth and inadequate overstory diversity in plantations.

**objectives:** Increase spacing to improve growth and vigor of individual trees of different size classes (structural diversity), enhance and prolong habitat conditions suitable for Northern Spotted Owl foraging and dispersal, and increase understory plant diversity in riparian and upland areas.

**treatments:** Use proportional thinning to retain trees across all diameter classes.

**learning:** Document changes in overstory and understory composition and structure over time; use by spotted owls.

**social values:** Diversify forest stands conditions and provide timber to local communities

**specific projects:** BLM: Sampson Butte timber sale.

### *retrospective thinning study*

**issues:** Current stand treatments will require many years before results of treatments are available.

**objectives:** Evaluate vegetative response to previous thinnings by looking at current stand conditions.

**learning:** Learn how past manipulation of overstory tree density has effected the growth and development of overstory and understory vegetation in second-growth Douglas-fir stands throughout western Oregon.



**social values:** Silvicultural knowledge gained will contribute to more productive forests.

**specific projects:** National Biological Service and BLM: Component of region-wide retrospective study.

*restoration of the Umpqua mariposa lily*

**issues:** Umpqua mariposa lily (*Calochortus umpquaensis*) is endemic to Oregon, restricted to serpentine soils, and listed as endangered by the state of Oregon.

**objectives:** Test ways to maintain or increase populations of *C. umpquaensis* through habitat manipulations and maintenance programs.

**learning:** Evaluate the effectiveness of proactive treatments on endangered species restoration.

**social values:** Maintenance or restoration of a unique species.

**specific projects:** BLM, Wolf Creek Job Corp, Forest Service: *C. Umpquaensis* Conservation Strategy, BLM and PNW: Manipulation study.

*community partnerships: education and ecosystem management*

**issues:** Local schools are seeking ways to provide students with experiences that are practical, problem solving, and educational.

**objectives:** To provide students and teachers with living laboratory for learning about ecosystem management. Give hands-on experience with collecting water quality data, geographic information systems, and internet communications. Characterize water quality conditions throughout the Little River watershed using the local community involvement.

**learning:** Water quality data will be collected according to interagency protocols using portable instrumentation.

**social values:** Increase understanding of ecosystem management by teachers and students.

**specific projects:** Forest Service and BLM: Glide School MOU.

## *establishment of baseline conditions and trends*

### *water quality monitoring*

**issue:** Recent water quality monitoring in the Little River watershed has shown that many locations are in violation of state water quality standards, which may be lethal to some aquatic organisms. Problems include high pH and water temperatures, algae blooms, excessive sedimentation, and peak flows that exceed natural conditions.

**objectives:** Establish long-term monitoring stations to evaluate trends in water quality throughout the watershed, including stream flow, pH, temperature, dissolved oxygen, and other water chemistry parameters. Understand the underlying causes and processes of the problems and develop corrective measures.

**learning:** This baseline information will help isolate the causes of these problems and guide future land management activities to improve water quality.

**social values:** Develop an understanding of water quality conditions and its relationship to aquatic organisms, especially fish stocks at risk, and domestic water use.

**specific projects:** Forest Service and BLM: Continuous basin-wide monitoring, volunteer monitoring, BLM: Sampson Butte Commercial Thinning, Emile Timber Sale.

### *spawning gravel sedimentation monitoring*

**issue:** Spawning habitat for anadromous fish is affected negatively by sedimentation of "fine" materials by suffocating fish during their early development.

**objective:** Determine the fine sedimentation loads and characteristics of important spawning areas for anadromous fish in the Little River system.

**learning:** Understand the cumulative effects of sediment movement on spawning habitat within the watershed.

**social values:** Maintenance of fisheries in the Little River watershed.

**specific projects:** Forest Service: Resource Northwest collected baseline data under contract in 1996.

### *effects of fire on landscape patterns and processes*

**issue:** Understanding how fire has affected landscape pattern and processes historically is critical to developing management strategies to restore and maintain ecosystem properties (e.g., vegetation structure, composition, and functions). For stand-level management activities to be effective, such as those that approximate the natural role of fire or that minimize the risks of large catastrophic fires, the relationship of fire parameters (fire size, frequency, extent, and severity) to landscape features (e.g., landform, distribution of fuels, wind patterns, and slope and aspect) must be known.

**objectives:** Determine the historical landscape patterns and processes associated with fire events, compare these conditions to current conditions, model fire effects on landscape patterns under different fuel treatment scenarios, and project what landscape patterns minimize catastrophic fires while meeting other resource objectives.

**learning:** Understand the relationship between fire and forest health and understand landscape-level implications fire management practices.

**social values:** Minimize the risk of large catastrophic fires.

**specific projects:** BLM and Forest Service: Masters Graduate project in cooperation with OSU, PNW, National Science Foundation.

*juvenile fish outmigration monitoring*

**issues:** Many stocks of anadromous fish in the Pacific Northwest have shown decreasing trends. The National Marine Fisheries Service has recently listed the Umpqua River coastal cutthroat trout as endangered; the coastal coho salmon and the steelhead are proposed as threatened. Fish stocks previously unknown in the watershed were recently discovered.

**objectives:** Establish a long-term monitoring station to evaluate trends in juvenile fish production in the Little River basin, and determine life history strategies and relative abundance of the different anadromous fish species that use the basin.

**learning:** Results of the monitoring will help determine the relative importance of the Little River basin to the North Umpqua fishery and will help evaluate the current management practices and restoration efforts.

**social value:** Provide managers and local community with an understanding of fish life history characteristics and population trends in the Little River basin.

**specific projects:** BLM and Forest Service: Little River smolt trap.